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Determining factors in shaping the sustainable behavior of the generation Z consumer

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Introduction: Organizations currently emphasize green marketing strategies by implementing marketing practices, aiming to design, produce, promote and sell green products. Thus, both consumers and producers have turned their attention to the category of environmental friendly products, taking into account that the concept of green marketing is now being given greater importance. Responsible organizations have begun to adapt their strategies in production, promotion and interaction activities with consumers or potential consumers of organic products in the context we are going through, when environmental protection becomes an imperative. Analysis of the sustainable behavior of Generation Z is a determining factor from the perspective of the task that this generation will naturally take on, in terms of environmental responsibility.

Methods: The research aims to determine the profile of the Generation Z consumer, in order to adapt the strategic actions of the government or organizations to direct and educate as objectively and efficiently as possible towards adopting the principles of ecological, sustainable and responsible consumption. Based on the data collected through a survey, we analyzed the sustainable behavior of Generation Z consumers studying at Romanian universities where there are specializations in this field. The research is quantitative, using structural equation modelling with partial least squares (PLSSEM) to test the hypotheses regarding the relationship between the determining factors and the sustainable behavior of Generation Z consumers.

Results and Discussion: The results show that there is a positive relationship between both the sustainable behavior of Generation Z consumers and the satisfaction it conveys to them, as well as their environmental protection activities. However, there is no relationship between the sustainable behavior of Generation Z consumers and the green marketing practices of the organizations, environmental issues and their identification with the environmentally responsible consumer.

KEYWORDS

green marketing practices, green products, green behaviour, generation Z, sustainability, environmental protection

1 Introduction

The activity of Green Marketing (GMk) has a relatively recent history in the consumers' perception and consciousness, in many cases the real evaluation of this concept causes confusion regarding its meaning. Thus, the implementation of GMk principles emerged in the 1970s from the need to educate the consumer towards a mindset favoring responsible consumption and environmental protection by adopting specific measures (Andronie et al., 2019). Among the first definitions of this concept, we can see an approach to the field from both a positive and negative perspective, showing that there are activities which contribute to the environmental pollution, consumption of energy resources, but also non-energy resources (Polonsky, 2011). GMk was defined as a complex product including improvement activities, pricing strategies, promotion policies and distribution methods which do not harm the environment (Saha and Darnton, 2005), instead, through the activity of product marketing, are safe for the environment (Xie et al., 2015).

In this context, GMk goes beyond the simple promotion of products or services with a green component. It is considered a field which has been long-researched but still insufficiently understood, and the possibility that this marketing concept can make a relevant and impactful contribution to society brings the need to focus more on major changes in thinking and practice (Peattie and Crane, 2005).

The mission to concretely define what GMk represents takes into account the numerous perceptions reflected in the literature. One understanding is that GMk sums up a wide range of processes, including product modification, production stages, packaging and promotion (Polonsky, 1994). In direct proportion to the importance given to the care of environmental sustainability, over time, the understandings regarding the approach to the concept of GMk have been very different (Dangelico and Vocalelli, 2017). Thus, the emphasis was placed on GMk policies which helped companies to identify new market niches and new consumer segments, by incorporating new visions and trends into their marketing process and strategy. In this context, organizations increasingly focused on the segment of green consumers, namely the consumers concerned with environmental protection and their own health (Pavan and Payal, 2012). In addition, because people are more and more willing to invest in the purchase of green products, the market includes them more (Ștefănică et al., 2020). The various objective reasons for this type of behavior relate to the concern for one's own health, responsibility towards the environment and towards other people, the increasingly varied knowledge which consumers begin to acquire either through their own research in the market or in specialized publications, or through media channels, other categories of consumers or other sources of information.

In the current activity of manufacturers or service providers, GMk can bring safe and long-term benefits, at the cost of observing the principles of quality management, primarily by being oriented to the customers and their needs. During the process of customer loyalty, in addition to the production and service delivery process, the provider manages to carry out an activity of education of the beneficiaries, by offering advantageous alternatives in terms of method, procurement time, method of use or price. Consequently, GMk is a concept which we meet both in the case of consumer and industrial goods, and we also find it in the service area, when more and more destinations try to promote themselves through activities provided to customers with a very small negative environmental impact, such as ecotourism (May 1991; Troumbis, 1991). Research shows that GMk brings with it particularities in behavior or purchasing intention, the actual purchasing behavior in the case of green products being influenced by a multitude of factors (Groening et al., 2018).

Generation Z and their behavioral patterns regarding the purchasing and consumption of green products according to gender have been insufficiently addressed as a main theme in specialized analyses. The literature review shows that there are experimental studies indicating major differences between the ways of making purchasing decisions in women and men (Yang and Wu, 2007), or differences among men of different generations (Brosdahl and Carpenter, 2011). The field of purchasing behavior for Generation Z representatives lacks analyses to show significant details or validated studies, especially since this category of consumers have different purchasing styles compared to past generations. In this context, in-depth research is needed, an aspect also substantiated by Bakewell and Mitchell (2003), who pointed out the research gaps in this direction and the need to start and support them. Therefore, this study aims to bring more information in the field of GMk, especially since it is focused on an analysis of the factors highlighting the purchasing differences of Generation Z consumers for green products.

Considering the issue analyzed, this paper is organized in the following sections: introduction, literature review and development of research hypotheses, research methodology, results, discussions and conclusions.

2 Theories and hypotheses

2.1 Green marketing practices and generation Z consumers

In recent years, GMk has occupied an increasingly extensive field in the practice of organizations and in the research fields of specialists due to the need for awareness of the importance which environmental practices should have in the strategy of organizations (Mukonza et al., 2021). The trend in the intentions of orientation towards the GMk activity of the organizations is to increase and integrate the vast activity into the overall management strategy. The promotion and practice of green consumerism can be supported by including in the strategy the relevance of sustainability and eco-innovations in this sector (Sarkar, 2012). Currently, a real promoter of GMk culture is Generation Z, which is at an intersection of decisions regarding GMk practices, not having a relevant benchmark in previous generations and being the actual generation with responsible behavior regarding environmental protection.

Considering that Generation Z is represented by the category of individuals born in the period 1990–2000, who from the point of view of their inclusion belong to a certain typology of consumers, they present obvious particularities, derived from the periods they crossed. These particularities are very well reflected in the purchasing behavior and the attitude towards specific concepts, in general, behavior marked by the following characteristics: the intention to innovate, the need for convenience, the search for security of any type and manifestations of escape from previous

customs (Wood, 2013). Generation Z has also been called the Post-Millennial Generation (born between 1997–2012) (Loria, 2018) or IGen (Bromwich, 2018). This generation is considered the engine of innovation and change, being a huge challenge for the marketing of any organization (Wood, 2013; Morgan, 2016).

The representatives of Generation Z consumers are generally more informed, and in particular, analyzing their degree of information in relation to the concepts of GMk and Green Marketing Practices (GMkP), it is obvious that there is a balance of the weights held by the information regarding GMk and GMkP, with advantageous fluctuations in certain periods for GMk. The explanation is easily observable and deductive from considerations related to age characteristics: the use of technology, the influence of the media, of social networks, the responsible behavior which young people take from those around them but without updating the information directly, and consequently, in certain circumstances, GMkP are not known, implicitly adopted, in their entirety (Bhavana and Thiruchanuru, 2018).

Generation Z consumers are characterized by the tendency to avoid the agglomeration of information, by focusing not only on the factors concerning them directly, the lack of time or experience, they are focused more than other generations on the concepts of green, sustainable, ecological, and have several social and ecological objectives (Kılıç et al., 2021). Thus, experienced retailers can use prospects or actual consumers as a competitive advantage in capturing representatives of Generation Z, capitalizing on the attributes of this generation, one of the most important being the interest and access to technology (Dospinescu et al., 2019). Consumer training can be done through smart sale applications, through which young people can be informed in making correct purchasing decisions (Priporas et al., 2017). The young people of Generation Z grew up in an environment where the population was aware of the importance of environmental responsibility, with school hours specifically allocated to this subject and with natural recycling skills, perspectives predicting a strict future approach to this generation regarding GMk and GMkP (Líšková et al., 2016).

Generation Z is assaulted daily in this information age we are going through by diverse pieces of information, coming from all environments, sometimes difficult to filter from the point of view of importance, which is why the concept of GMk is part of the category of notions which need to be explained, and later correctly understood by young people (Tamer and Popescu, 2016). Generation Z consumers inform themselves and are also informed about the concepts of GMk and GMkP, as they are an integral part of marketing and communication strategies of the companies. Generation Z is a generation formed in the context of the large-scale existence of environmental practices and is aware of environmental threats and their effects, being aware of the concepts of GMk and GMkP since primary school (Lerch, 2020). Attitudes related to green marketing are a natural component of the daily life of Generation Z, namely through recycling activities, use of energy efficient devices, purchase of environmental friendly products and food.

According to this dimension resulted from the literature, the research hypothesis tested in our study is the following:

Hypothesis 1 (H1): There is a direct and significant relationship between the GMkP of organizations and the sustainable behavior of Generation Z consumers.

2.2 The attitude of generation Z consumers towards environmental protection under the influence of GMkP

Currently, GMkP have become a constant and a normality of our life, representing a tool to protect the environment. Consumers have become much more informed, advised through the campaigns of the organizations, and they are willing to allocate a larger budget for the purchase of green products. In this context, GMk creates new markets and implicitly new jobs (Yazdanifard and Mercy, 2011). Thus, GMkP transposed into company activities, including through their reflection in activities aimed at corporate social responsibility (CSR), later become practices assimilated by the population. Environmental protection is promoted by the efforts of the companies to produce, promote, distribute and price a product or service in accordance with GMkP (Polonsky, 2011). The way in which green marketing was promoted over time consisted of multiple improvements, practices or innovations, which were subsequently brought to the attention of customers or potential customers (Cherian and Jacob, 2012). These green practices consisted in processes, promotion, branding and communication activities, packaging, and supply chain, all fitted to protect the environment. Through these measures, consumers implemented GMk measures in their purchasing and consumption behaviour, and implicitly in environmental protection (Suki and Suki, 2019).

Nguyen's research (2021) illustrates the opposite of what was mentioned above, stating that there are representatives of Generation Z who are not influenced by GMkP measures adopted by companies, therefore, the intention to purchase green products is very rare, random or absent.

According to the source of information and the manner of transmission of information regarding GMkP of the organizations, the attitude and behavior of Generation Z consumers regarding the active assimilation of these practices may vary as a form of manifestation. There are effective strategies for GMkP communication in the organizations, compatible with the profile of Generation Z representatives, as well as less inspired channels through which this information is attempted to be transmitted. Sometimes companies fail to convey enough information through their own campaigns regarding the way in which the products or services offered are compatible with the consumer's vision of environmental protection. Generation Z exponents are also strongly influenced by the reputation of a company, by the information available on product packaging, by the use of symbols and specific terminology (Smith and Brower, 2012). Nadanyiová and Gajanová (2018) identified the benefits of organizations using green marketing principles and communicating them through multiple channels of information. According to this study, among all the age groups, Generation Z is the most interested category in getting involved in activities to protect the environment, an initiative which confirms the fact that organizations use effective channels or sources to transmit information about GMkP. They positively shaped the trend of millennials' involvement in the purchase of green products and involvement in activities of environmental protection by saving water, energy and by recycling.

Consequently, we can see that Generation Z has particularities in terms of consumption behavior, the choice of green products, principles or particular reasoning compared to other generations, so that both manufacturers and retailers take these aspects into

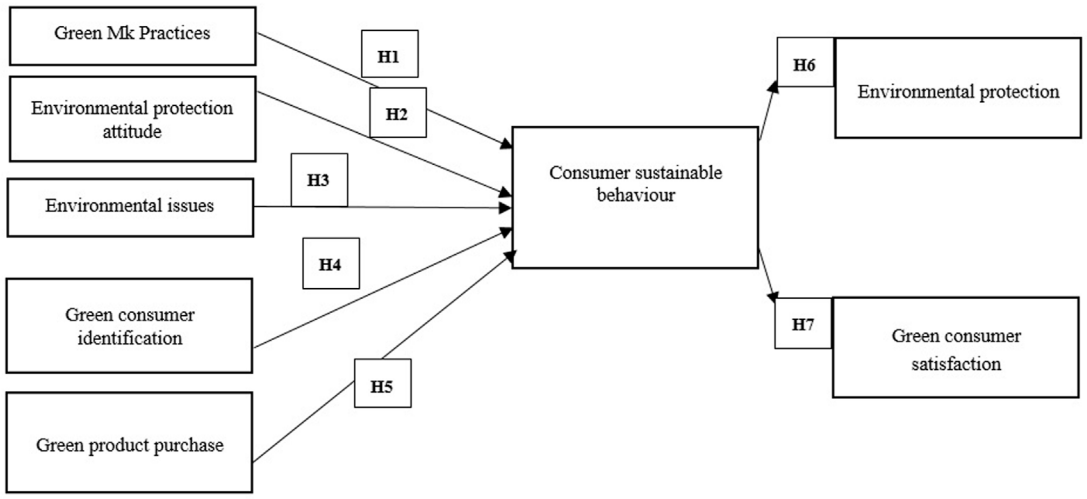

FIGURE 1
Theoretical model regardingthe green consumer's profile.

account when choosing their own GMkP. In this context, there is a certain generational approach, often used in the development, promotion and sale of this particular category of products, i.e., green products (Dabija et al., 2020). GMkP are a support tool in choosing and maintaining consumption habits, but they can also be a determining factor of environmental protection activities or of the choice of green products. Studies indicate changes in the attitude and behavior of Generation Z, who, unlike the generation before them, seems to be oriented towards a behavior with a tendency to stability, both in terms of choosing a job and in terms of habits (Reiners, 2020). Thus, we can state that nowadays the GMkP of organizations, including related products or services, are much easier to transmit and receive by Generation Z consumers, because, as the existing research proves, this generation is the first to naturally realize the importance of the environment, of specific consumption, of adopting a certain behavior or type of consumption, which encourages companies to insist on the implementation of specific green marketing practices (Naidu et al., 2020).

Moreover, Generation Z is the first generation born and raised in the era of technological development, focused on digital components and with a strong identity belonging to technology (Singh and Dangmei, 2016), a generation who will bring multiple changes, including on the labor market. The distinct style of behavior, attitudes, preferences, reactions to the marketing moves of the companies regarding green practices are diametrically opposed to those of the previous generation. Compared to Generation Y, Generation Z seems to be less motivated by the financial component or by marketing strategies involving discounts, promotions, sales, instead emphasizing quality (Schawbel, 2014). For this reason, a campaign tailored to the behavioral characteristics of this generation can be successful, having the advantage of being directed towards an informed, pragmatic generation oriented towards a high quality of life.

According to this dimension resulted from the literature, the research hypothesis tested in our study is the following:

Hypothesis 2 (H2): There is a direct and significant relationship between the environmental protection attitude and the sustainable behavior of Generation Z consumers.

2.3 Generation Z consumers' perceptions of environmental issues

Environmental issues are a significant source of concern for many people around the world (Stefănică et al., 2020), regardless of the consumer generation they belong to. Among them, for the representatives of Generation Z, climate change, pollution or loss of natural resources are at the top of the list of vital challenges of our time (Barbiroglio, 2019), which led them to mobilize and organize school strikes by which young people demanded specific actions to improve environmental problems. According to the results of the research conducted by Kamenidou et al. (2019), global warming and air pollution seem to be the most pressing problems, because they can lead to the extinction of species or the appearance of serious diseases. In this sense, there are recent studies (Bailey et al., 2022; Schwartz et al., 2022) linking environmental events such as temperature extremes, air pollution, flooding, and sea level rise to various mental health issues, including difficulties in social relationships, anxiety, depression (Reyes et al., 2021), recorded especially among young people. Air pollution and food safety concerns increased also the awareness of environmental issues for Generation Z consumers in Taiwan (Chen et al., 2018). Contrary to the results of previous research works, which demonstrate that the youth of Generation Z are aware of the seriousness of environmental issues and their influence on consumption, a study conducted by Jürkenbeck et al. (2021) divides this cohort into three different segments in terms of climate change awareness. However, the results show that of the nearly 1500 young people included in the sample, half are very aware of climate change, nearly 30% recognize climate change, but consider that the risks are relatively low, while 13.90% of respondents deny the existence of climate change.

TABLE 1 Respondents' characteristics.

Classification	Description	Frequency	
		Total	Percentage
Gender	Female	561	71.56%
	Male	223	28.44%
Environment	Rural	365	46.56%
	Urban	419	53.44%
Age	(18–29)	784	100,00%
Personal income	under 1000 RON	310	39.54%
	between 1000–2000 RON	175	22.32%
	between 2000–4000 RON	204	26.02%
	between 4000–6000 RON	70	8.93%
	over 6000 RON	25	3.19%
Family income	under 2000 RON	114	14.54%
	between 2000–4000 RON	259	33.04%
	between 4000–6000 RON	215	27.42%
	between 6000–10000 RON	142	18.11%
	over 10000 RON	54	6,89%

Source: authors' calculations based on Stata statistical analysis software.

According to Singh and Dangmei (2016), Generation Z consumers are very concerned about environmental issues, very aware of looming shortages, indicating that they have a high degree of responsibility towards natural resources. Hidayat and Hidayat (2021) mention that the majority of Generation Z shows deep concern about the negative implications of a development which exploits nature, unbalanced ecosystems and human ignorance of environmental sustainability. Generation Z consumers are more willing than older generations to engage in environmental activism, such as volunteering and donating money to environmental causes.

In order to meet the demands of Generation Z consumers, companies will need to adapt their green marketing strategies to fulfil consumers' sustainability expectations, considering that this group of consumners is much more informed than the other generations, with more knowledge about sustainability and concerned about environmental issues, willing to pay more for green products, implicitly organic, healthier food (Su et al., 2019).

According to this dimension resulted from the literature, the research hypothesis tested in our study is the following:

Hypothesis 3 (H3): There is a direct and significant relationship between the perception of environmental issues and the sustainable behavior of Generation Z consumers.

2.4 Identification of generation Z with the green consumer

According to specialized studies, consumers of environmental friendly products have their own, separate characteristics compared to non-consumers of green products. Generations X and Z seem to be much more concerned with everything related to green consumption, the practices of manufacturing companies or traders influence the attitude and size of consumption (Bhavana and Thiruchanuru, 2018). GMkP mainly include green marketing strategy, communication and promotion channels, price and quality offered. Regarding the gender-related consumption behaviors, specialists state that there are major differences in terms of attitude, purchasing and consumption behavior between men and women, influenced by marketing practices. Women consciously buy and consume green products more than men, they are receptive to recommendations coming from people they know or from marketing practices of organizations ((Zhao et al., 2021)). At the same time, Generation Z is guided and oriented towards everything that means the digital age, preferring online payments instead of printed invoices, they do not approve of waste, and they are willing to pay extra for the purchase of green products (Ahmad and Omar, 2018). Green advertising captures buyers emotionally, and the purchasing decision process in the case of female consumers from Generation Z is influenced to a greater extent than in the case of male consumers, preferring green products, their labelling, the information presented on the product packaging, and their recyclable quality (Narula and Sabharwal, 2016).

Generation Z values quality more than previous generations. Most of the time, this group of consumers makes purchases based on their own beliefs and marketers start to earn their trust and loyalty as early as possible. Studies indicate that the women from this generation are the ones who purchase goods or services for the most part and marketing strategies are more focused on this aspect (Williams and Page, 2011). In addition, individual behavior is not always correlated with their perception of environmental components or green consumption, the latter being negative, in most cases discrepant with personal perceptions of the concepts as a whole (Deliana and Rum, 2019). Generation Z is an informed, practical generation, oriented towards healthy consumption, and in terms of gender differences in the purchasing process, the female gender outranks, both in terms of consumption and the orientation towards purchasing green products, men being less interested than women in the environment and implicitly in such products (Diamantopoulos et al., 2003).

Some research works demonstrate that women are more attentive to environmental issues, purchasing and consumption of green products (Campbell-Arvai et al., 2012; Kamenidou et al., 2019), also local green products, from moral, ethical and economic considerations and factors (Bumbac et al., 2020). Generation Z avoids the waste of green food, compared to previous generations, and in terms of gender differences and sustainable consumption behavior, research works confirm the hypothesis that women show a greater degree of rational, responsible consumption of green products than men, having concerns and tendencies to reuse or recycle more (Bulut et al., 2017). Another research found significant gender differences in relation to the perception of Generation Z consumers according to gender, and this time there were higher percentages of women regarding the attitude and consistency of the act of purchasing (Lorincová et al., 2019). In conclusion, although the purchasing power of Generation Z exceeds that of Generation Y, the rational consumption of the first, makes them allocate a smaller budget to expenses, a situation also reflected in the case of purchasing green products (Kowalska et al., 2021).

According to this dimension resulted from the literature, the research hypothesis tested in our study is the following:

Hypothesis 4 (H4): There is a direct and significant relationship between the degree of identification with the green consumer and the sustainable behavior of Generation Z consumers.

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TABLE 2 Results of descriptive statistics.

	Constructor	Mean	Category
	PGMk - Green Marketing Practices	6.28	Totally agree
	APM - Environmental protection attitude	5.82	Generally agree
	PM - Environmental issues	6.30	Totally agree
	CV - Green consumer identification	4.65	Partly agree
	APE - Green product purchase	5.48	Generally agree
	CPE - Sustainable consumer behaviour	5.29	Partly agree
	IPM - Environmental protection	5.38	Generally agree
	SCV - Green consumer satisfaction	5.79	Generally agree

Item	Item names	Mean	Median	Mode	Std. Deviation
PGMk1	Manufacturing green products	6.35	7	7	1.082
PGMk2	Manufacturing products through a green process	6.35	7	7	1.029
PGMk3	Promotion of products through green communication methods	6.18	7	7	1.132
PGMk4	Product branding associated with green marketing practices	6.09	7	7	1.178
PGMk5	Modification of products to make them green	6.14	7	7	1.260
PGMk6	Changing product packaging to suit the environment	6.32	7	7	1.158
PGMk7	Educating the customer to use the products in a green way	6.48	7	7	1.028
PGMk8	Using green supply chain for procurement and distribution	6.31	7	7	1.108
APM1	It is important to me that the products I use do not harm the environment	6.10	6	7	1.270
APM2	I consider the potential environmental impact of my activities when making many of my decisions	5.77	6	6	1.262
APM3	My purchasing habits are affected by my concern for environmental protection	5.23	5	6	1.381
APM4	I am concerned about the waste of our planet's resources	6.18	7	7	1.259
APM5	I would describe myself as environmentally responsible	5.82	6	7	1.269
APM6	I am willing/interested in participating in green activities	5.80	6	7	1.384
PM1	Destruction of the ozone layer	6.18	7	7	1.200
PM2	Industrial water pollution	6.47	7	7	1.012
PM3	Industrial air pollution	6.38	7	7	1.028
PM4	The content of pesticides in food	6.26	7	7	1.095
PM5	Hazardous waste	6.40	7	7	1.094
PM6	Contamination of drinking water	6.49	7	7	0.988
PM7	Global warming	6.32	7	7	1.130

(Continued on following page)

TABLE 2 (*Continued*) Results of descriptive statistics.

Item	Item names	Mean	Median	Mode	Std. Deviation
PM8	Ocean pollution	6.45	7	7	1.009
PM9	Endangered species	6.21	7	7	1.170
PM10	Destruction of the tropical forest	6.40	7	7	1.047
CV1	I only buy green products	4.84	5	5	1.370
CV2	I spend time and effort on environmental activities such as recycling	5.06	5	5	1.368
CV3	I believe a person can do a lot to promote the environment	6.01	6	7	1.176
CV4	I am able to buy green products, but I don't have time and energy for environmental activities	5.09	5	5	1.539
CV5	I don't want to change my lifestyle to promote the environment	3.31	3	1	1.952
CV6	I may buy green products from time to time, but I am not involved in environmental activities	4.63	5	5	1.687
CV7	I don't buy green products	3.15	3	1	1.983
CV8	I believe that the organisations and the government should solve environmental issues	5.43	6	7	1.571
CV9	I am the least involved in green activities	3.85	4	5	1.889
CV10	I believe that there is not much that an individual can do in solving environmental issues	3.78	4	1	2.163
CV11	Government and organisations should promote the environment	5.95	7	7	1.394
APE1	I take into account the negative effects of production and consumption on the natural environment	5.36	6	6	1.437
APE2	I prefer green products to conventional products	5.38	6	6	1.356
APE3	I feel that green products are priced higher compared to conventional products	5.89	6	7	1.334
APE4	I believe that the price of the green product affects my purchasing behaviour	5.30	6	7	1.623
CPE1	I try to buy energy efficient products and appliances	5.64	6	7	1.310
CPE2	I avoid to buy products with excessive packaging	5.20	5	5	1.455
CPE3	When there is a choice, I choose the product which causes the least pollution	5.41	6	6	1.368
CPE4	I changed products/brands for green reasons	5.00	5	5	1.550
CPE5	I make every effort to buy products made from recycled paper	5.21	5	5	1.498
CPE6	I use green soaps and detergents	4.85	5	5	1.601

(Continued on following page)

TABLE 2 (*Continued*) **Results of descriptive statistics.**

Item	Item names	Mean	Median	Mode	Std. Deviation
CPE7	I convinced family members or friends not to buy some harmful products	4.96	5	6	1.633
CPE8	Whenever possible, I buy products packed in reusable containers	5.35	6	7	1.516
CPE9	I try to buy products which can be recycled	5.46	6	7	1.448
CPE10	I buy high efficiency light bulbs to save energy	5.78	6	7	1.402
IPM3	Organisations which produce/ promote green products are really concerned about the environment	5.49	6	6	1.326
IPM4	Consumers have become much more concerned about environmental protection in recent years	5.26	5	6	1.388
SCV1	I am happy with my decision to buy green products	5.72	6	7	1.359
SCV2	I am happy to buy green products	5.80	6	7	1.256
SCV3	I believe I am doing the right thing in purchasing green products	5.72	6	7	1.336
SCV4	I feel that I can contribute to environmental protection and sustainable development	5.85	6	7	1.250
SCV5	All in all, I'm happy to buy a product if it's eco-friendly	5.92	6	7	1.231
SCV6	I am generally happy with green products because of my concern for the environment	5.74	6	7	1.297

Note: Criterion for the mean of respondents' answers: 1) 1<a<1.85, Totally disagree; 2) 1.86<a<2.71, Generally disagree; 3) 2.72<a<3.57, Partly disagree; 4) 3.58<a<4.43, I do not agree or disagree; 5) 4.44<a<5.29, Partly agree; 6) 5.3<a<6.15, Generally agree; 7) 6.16<a<7,01, Totally agree.

2.5 Behavior of generation Z consumers in purchasing a green product

Social behavior indicates for the representatives of Generation Z different behaviors and preferences regarding consumption and the manner of making purchasing decisions (Puiu, 2016). Although people are aware of the need to protect the environment, including through the behavior adopted when purchasing green products, sometimes a lack of responsible behaviour is manifested through specific actions (Hicks and Hicks, 2003). Even if Generation Z has a green consciousness, in certain periods they lack motivation, which prevents the millennials from putting into practice the spirit required (Gómez-Román et al., 2020). The purchasing behavior of a green product is also reflected in the way in which people feel correctly and completely informed about everything that the purchasing process entails. Ever since the last century, the need of efficiency by simplifying information activities has been reiterated (Herberger, 1975), and it is currently practiced with very good results in terms of the sale volume of green products. Thus, any purchasing behavior of a green product will be modified for the benefit of society (Gierszewska and Seretny, 2019). The green purchasing behavior of Generation Z representatives will increase when individuals operate personally and professionally in a predominantly green environment. Thus, we can see that the purchase of green products is increasingly frequent and sometimes a little encouraged by the development of technology (Jaciow and Wolny, 2021).

In correlation with the principle of quality management and customer orientation, respectively, the companies producing or supplying green products and services supported directly or through outsourcing the research to identify as faithfully as possible the profile of the consumer, including their gender. Thus, the results of the study conducted by Davies et al. (1995) in the period 1989–1993 with actual buyers of green products as subjects highlighted that in that period, in relation to the size of purchases of such products and the degree of loyalty, the actual buyers were represented by women in the 30–45 age category, with children, and above average financial resources. Irianto (2015) and Bojkovska et al. (2017) demonstrated the tendency of women to purchase green products, their orientation towards protecting the environment and their own health as well as that of their family, while Hojnik et al. (2019) did not capture gender differences. The previously mentioned

TABLE 3 Results of Cronbach's Alpha test.

Constructor	Cronbach's Alpha	Interpretation
Green Marketing practices	0.954	Excellent internal consistency
Environmental protection attitude	0.919	Excellent internal consistency
Environmental issues	0.959	Excellent internal consistency
Green consumer identification	0.808	Good internal consistency[a]
Green product purchase	0.793	Good internal consistency[b]
Sustainable consumer behaviour	0.934	Excellent internal consistency
Environmental protection	0.722	Good internal consistency
Green consumer satisfaction	0.958	Excellent internal consistency

[a]Note: Value of Cronbach's Alpha coefficient when item 3 is supressed.
[b]Value of Cronbach's Alpha coefficient when item 4 is supressed.

research works show us a predominant similarity of behavior in female consumers with regard to consumers both representatives of Generation Z and those of previous generations, and the higher degree of receptivity to purchase green products, compared to male consumers.

Thus, it was found that there were attempts to define the profile of the consumers of green products according to their purchasing behavior, materialized in price acceptance, loyalty to the brand, or curiosity towards new products (Shrum et al., 1995). The purchasing and consumption decision among Generation Z representatives for green products is analyzed from several perspectives (economic, legal, ethical) (Pelikánová and Hála, 2021). Generation Z keeps more informed than other generations, choosing mainly the mass media as a source of information (Choi et al., 2021). Although the previously mentioned research works and those conducted by other authors (Shwetha, 2019) reflect an interest of Generation Z towards purchasing green products, concern for renewable energy, sustainability initiatives, this phenomenon cannot be extrapolated on a large scale to Generation Z to a high extent, as we are currently also facing negative phenomena regarding the purchasing and consumption behavior of young people, reflected in the massive food waste, and the lack of a green behavior (Kymäläinen et al., 2021). A research work conducted at the end of 2020 on the youngest representatives of Generation Z illustrates that, relative to gender, young men know more details and have more information and knowledge about green products and concepts, obtained in a proportion of over 50% from the Internet and social media (Guzel, 2020). In this sense, it is important that producers and traders stimulate through specific ways of promotion the responsible behavior of young people, regardless of gender, of positive perceptions towards green products and sustainability (Mohd Suki, 2013).

When purchasing green products, consumers mainly request information about the nutritional value and the content of chemical residues, and the concern for one's own health, the environment or the growth of the economy leads to the purchase of such products (Tsakiridou et al., 2008).

The analyses performed so far in an attempt to identify the particularities in the purchasing process specific to Generation Z have divided opinions in this field. Thus, we can consider that the phenomenon of purchasing green products is mainly a generational characteristic (Eastman and Liu., 2012) or, on the contrary, it is less relevant than the research of preferences, implicitly segmenting consumers according to gender, income and education (Meredith and Schewe, 2003). It is also necessary to study Generation Z and its representatives, respectively, as carefully as possible in order to approach effective marketing strategies. It is necessary to identify the purchasing behavior of green products for this generation in order to be able to discover the motivations determining these behaviors (Young and Hinesly, 2012; Parment, 2013).

According to this dimension resulted from the literature, the research hypothesis tested in our study is the following:

Hypothesis 5 (H5): There is a direct and significant relationship between the willingness to purchase a green product and the sustainable behavior of Generation Z consumers.

2.6 Role of sustainable behavior in environmental protection and the satisfaction of the generation Z consumer

2.6.1 Sustainable behavior of generation Z consumer

The severity of environmental problems, as well as global awareness of the balance between economic development and environmental conservation led consumers to adopt sustainable lifestyles and accept sustainable consumption patterns (Su et al., 2019). Thus, changing consumer lifestyles, environmental pollution and the determination to improve the quality of life have become prerequisites for new generations to take environmental criteria into account when making choices or making decisions. In this sense, the representatives of Generation Z present different behavior models, being interested not only in the present, but also in the future impact of their actions, they show a greater interest in actively participating in social issues, as well as an increased responsibility (Song et al., 2020).

Generation Z consumers are known as the most socially aware and responsible, with responsible consumption, self-care and environmental care (Barber et al., 2009), they are highly motivated (Calk and Patrick, 2017), predominantly engaged in a specific consumer culture due to technological progress and innovations. There are stereotypes indicating the existence of prejudices according to which female consumers are predominant in the panel of purchasers of green products, due to the fact that this type of purchase is associated more with a female attribute (Brough et al., 2016).

TABLE 4 Constructor reliability.

Constructor	Loading factor
Green Marketing practices CR = 0.955	
PGMk1	0.877
PGMk2	0.896
PGMk3	0.858
PGMk4	0.813
PGMk5	0.767
PGMk6	0.835
PGMk7	0.883
PGMk8	0.892
Environmental protection attitude CR = 0.921	
APM1	0.833
APM2	0.844
APM3	0.763
APM4	0.831
APM5	0.844
APM6	0.754
Environmental issues CR = 0.960	
PM1	0.748
PM2	0.868
PM3	0.880
PM4	0.796
PM5	0.867
PM6	0.888
PM7	0.813
PM8	0.905
PM9	0.779
PM10	0.855
Green consumer identification CR = 0.789	
CV1	0.324
CV2	0.177
CV3	0.497
CV4	0.770
CV5	0.654
CV6	0.740
CV7	0.366
CV8	0.728
CV9	0.654
CV10	0.175
Green product purchase CR = 0.803	
APE1	0.822
APE2	0.877
APE3	0.555
Sustainable consumer behaviour CR = 0.921	
CPE1	0.679
CPE2	0.657
CPE3	0.805
CPE4	0.704
CPE5	0.825
CPE6	0.695
CPE7	0.734
CPE8	0.777
CPE9	0.801
CPE10	0.656
Environmental protection CR = 0.716	
IPM3	0.767
IPM4	0.726
Green consumer satisfaction CR = 0.954	
SCV1	0.872
SCV2	0.911
SCV3	0.865
SCV4	0.863
SCV5	0.882
SCV6	0.889

Note: CR: composite reliability.

Contrary to the results of previous studies, the research conducted by Parzonko et al. (2021) showed that Generation Z representatives in Poland are less involved in pro-environmental behaviors than people from previous generations. In general, their sustainable behavior is based mainly on economic factors which bring financial benefits and is reflected in actions such as choosing public transport as a basic means of transport, turning off the lights when leaving a room or those imposed by legal regulations.

According to this dimension resulted from the literature, the research hypothesis tested in our study is the following:

Hypothesis 6 (H6): The sustainable behavior of Generation Z consumers has a positive and significant influence on environmental protection.

2.6.2 Environmental protection and green consumer satisfaction

The effective management of the environmental protection activity is a long, expensive phenomenon, not at all easy to implement, which involves all categories of the resources of an organization, but with very positive results, benefits and perspectives for the environment (Ștefănică and Butnaru, 2019). Purchasing behavior, responsible consumerism practices and environmental protection attitude of Generation Z consumers were the subject of interest in the research conducted by Walters (2021), Võ (2019) and Gajda (2020). Many of the recent research works in the field gather representatives of Generations Y and Z in the sample, in order to identify purchasing attitudes regarding green products, awareness of environmental issues, information held about the concepts of GMk and GMkP, elements which indicate that there are many similarities of behavior regarding the representatives of the two generations, who want to be informed how to ensure the consumption of healthy products in the family so as to meet the requirements of environmental protection (Chandra, 2019).

It is certain that we can identify behaviors illustrating young people's positive perception of the importance of environmental protection through activities such as recycling, selective collection and purchase of energy efficient equipment (Hansmann et al., 2006; Aizawa et al., 2008). Considering these aspects, Anders (2021) believes that Generation Z is the one who will dictate many of the future directions and strategies of companies, including the trends in the labor market. Therefore, green marketing practices influence the behavior of Generation Z consumers regarding the adoption of

TABLE 5 Convergent validity.

Constructor	AVE
PGMk - Green Marketing practices	0.729
APM - Environmental protection attitude	0.660
PM - Environmental issues	0.710
CV - Green consumer identification	0.307
APE - Green product purchase	0.584
CPE - Sustainable consumer behaviour	0.541
IPM - Environmental protection	0.558
SCV - Green consumer satisfaction	0.775

Note: AVE: average variance extracted.

environmental protection activities, given the role of the constant transmission of practices and the highly effective targeted manner, on all channels and through all the means to which Generation Z exponents have access.

Similarly, the authors Dabija et al. (2020) state that members of Generation Z express a very strong interest in sustainable development and social responsibility and tend to get involved in environmental protection activities, because they bring them great satisfaction (Stefănică and Sandu, 2019). The conclusions of Witek and Kuźniar (2020) place the female population in a superior position in terms of receptivity to green consumer quality, being prone to pay a higher price and having an important concern for environmental protection.

According to this dimension resulted from the literature, the research hypothesis tested in our study is the following:

Hypothesis 7 (H7): The sustainable behavior of Generation Z consumers has a positive and significant influence on their satisfaction.

Figure 1 shows the theoretical model regarding the relationship between the sustainable behavior of the consumer based on the determining factors influencing this behavior with an impact both on the environmental protection and on the green consumer satisfaction.

The theoretical model proposed is based on the research conducted by Bhatia and Jain (2014), Shiel et al. (2020) and Gelderman et al. (2021) regarding green marketing practices, consumer's perception and preferences for environmental friendly products, also sustainable development and responsible consumption behavior. Starting from these studies, our article proposes testing 7 research hypotheses, formulated on the basis of the 8 dimensions and 57 research items validated in the studies conducted by Bhatia and Jain (2014), Shiel et al. (2020) and Gelderman et al. (2021).

3 Methodology

This research is designed as a quantitative study aiming to investigate the relationship between the determining factors and environmentally responsible behavior of Generation Z consumers, as well as the relationship between the sustainable behavior of the members of this particular group and environmental protection and green consumer satisfaction. The first approach is to estimate a model to test the relationships between GMk practices, environmental protection attitude, environmental issues, identification with the green consumer, and the purchase of green products and the sustainable behavior of Generation Z consumers. The second approach involves testing the relationships between the sustainable behavior of Generation Z consumers and the environmental protection, and the degree of satisfaction of the green consumer, respectively.

In this analysis, we used structural equation modelling using the least squares method (PLS-SEM) (using IBM SPSS AMOS 23), to test the statistical hypotheses formulated, also to estimate the relationships between endogenous and exogenous variables.

The quantitative approach was performed by investigation, using a questionnaire with 33 questions as a data collection tool, resulting in 784 completed questionnaires with valid answers. The questionnaire was developed according to the dimensions validated by the studies conducted by Bhatia and Jain (2014), Shiel et al. (2020) and Gelderman et al. (2021). In addition, our research tool includes 6 dimensions (green marketing practices–PGMk 1-8, environmental protection attitude–APM 1-6, environmental issues–PM 1–10, green consumer identification–CV 1–11, green product purchase–APE 1-4, environmental protection–IPM 3–4) which were validated by Bhatia and Jain (2014), one dimension (sustainable consumer behavior–CPE 1–10) validated by Shiel et al. (2020) and one dimension (green consumer satisfaction–SCV 1–6) validated by Gelderman et al. (2021). Therefore, there are 8 dimensions and 57 validated items. The respondents are students from university centers in Romania, aged between 18 and 29, coming from an urban environment. We chose to study the perception of young people of Generation Z primarily because it has been studied relatively little so far, and because more and more young people are concerned about environmental protection (Võ, 2019; Gajda, 2020; Walters, 2021). In addition, the young people of Generation Z are very interested in sustainable development and social responsibility (Dabija et al., 2020), responsible consumption (Barber et al., 2009), they are motivated in their decision to adopt measures to protect the environment (Calk and Patrick, 2017), which largely depends on their satisfaction as green consumers (Witek and Kuźniar, 2020).

Thus, the target group received a link to an online survey made in Google Forms to answer the questions in the questionnaire. The questionnaires were anonymous to ensure the confidentiality and reliability of the data. The measurement scale of the items included a 7-point Likert-type construction, from "totally disagree" to "totally agree".

4 Results

4.1 The descriptive statistical analysis report

Table 1 shows the respondents' characteristics. Analyzing it, we can see that the majority of respondents who answered the questionnaire are female (71.56%). Most of the respondents come from the urban environment, regardless of their gender. Analyzing the statistical data by age groups, we can see that the respondents who answered the questionnaire are people from Generation Z (age group 18–29 years old), their proportion being 100.00%. Students' personal incomes, as shown in the table, are mostly under 1000 lei, the equivalent of 200 Euros, i.e., in a proportion of 39.54%.Unlike the

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TABLE 6 Fornell-Larcker criterion analysis for checking discriminant validity.

	PGMk	APM	PM	CV	APE	CPE	IPM	SCV
PGMk	0.853	0.688	0.631	0.123	0.609	0.460	0.575	0.518
APM	0.688	0.812	0.521	0.096	0.631	0.567	0.644	0.608
PM	0.631	0.521	0.840	-0.036	0.410	0.320	0.414	0.398
CV	0.123	0.096	-0.036	0.509	0.264	0.209	0.276	0.043
APE	0.609	0.631	0.410	0.264	0.751	0.747	0.510	0.685
CPE	0.460	0.567	0.320	0.209	0.747	0.733	0.419	0.747
IPM	0.575	0.644	0.414	0.276	0.510	0.419	0.747	0.440
SCV	0.518	0.608	0.398	0.043	0.685	0.747	0.440	0.880

personal income, the family income is mostly between 2000 and 4000 lei (between 400–800 Euro).

The results of descriptive statistics are showed in table 2 and they present the mean, median, module and standard deviation of each indicator separately. The mean value of 6.28 shows that the respondents totally agree with the importance of green marketing practices of organizations with a role in the acquisition by the consumer of a sustainable behavior with benefits in environmental protection. Regarding the respondents' attitude towards environmental protection, they generally agree with the items in the questions (the mean is 5.82). Regarding environmental issues, the people who answered the questionnaire totally agree with the items formulated (the mean is 6.30). The mean value of 4.65 shows that the respondents mostly agree with the statements regarding the identification of the green consumer profile. Regarding the way of purchasing a green product, the mean was 5.48, which means that the people who answered the questionnaire generally agree with the items formulated. The respondents also generally agree with the answers given in the case of environmental protection activities (with a mean of 5.38), also with those regarding consumer satisfaction when consuming green products (the mean is 5.79). The mean of 5.29 shows that the respondents partially agree with the statements regarding the sustainable consumer behavior. The calculation of means for each constructor was done taking into account the values of the data representation scale, which has values between 1 and 7.

4.2 External models

Within this study, we defined 8 constructors, each of them including at least 3 measurement items. The participants were asked to rate each item on a 7-point Likert scale (1-totally disagree and 7-totally agree). We examined the relationship between each constructor and the items using measurement model analysis, consisting of reliability and validity tests. On this basis, we calculated reliability of the items and constructors, and convergent and discriminant validity for the constructor.

Constructor reliability allows the evaluation of the consistency of a variable or set of variables in its intended measurement (Straub and Gefen, 2004). Composite reliability and the Cronbach's Alpha test are used to determine reliability. The data obtained for the Cronbach's Alpha test are presented in table 3. Analyzing these data, we can say that we are dealing with an excellent consistency, in other words there is a close connection among the items of each constructor.

Composite reliability, also identified as constructor reliability, is a measure of internal consistency within a scale of items, being similar to Cronbach's Alpha test. Its calculation was made using factor loadings. The values of this indicator must be above 0.7. The analysis of the factor loading data for each of the 8 constructors indicates that they are all reliable (the results are shown in Table 4).

To test the validity of the constructors, we used convergent validity and discriminant (divergent) validity. To determine convergent validity, we used the average of the extracted dispersion (Average Variance Extracted-AVE), as suggested in the work of Fornell and Larcker (1981). Its value must be above 0.5 to show that the error value measured is not above the constructor dispersion. The values found for the 8constructors are presented in table 5.

TABLE 7 Summary of the structural model analysis

			Estimate	S.E.	C.R.	P	Is the hypothesis supported?
H1 Sustainable_behaviour	<--	Green_Practices	0.003	0.026	0.131	0.896	No
H2 Sustainable_behaviour	<--	Environmental_protection_attitude	0.239	0.026	9.232	***	Yes
H3 Sustainable_behaviour	<--	Environmental_issues	0.009	0.027	0.321	0.749	No
H4 Sustainable_behaviour	<--	Consumer_identification	0.091	0.059	1.534	0.125	No
H5 Sustainable_behaviour	<--	Green_product_purchase	0.468	0.031	15.097	***	Yes
H6 Environmental_protection	<--	Sustainable_behaviour	0.504	0.058	8.758	***	Yes
H7 Consumer_satisfaction	<--	Sustainable_behaviour	0.981	0.056	17.470	***	Yes

As we can see in table 5, all the constructors, except the constructor "green consumer identification", have values above 0.5. Given that the CR of the constructor is above 0.7 and only the AVE is below 0.5, we can say that the convergent validity of the constructor is adequate (Fornell and Larcker, 1981). Discriminant validity test was performed in this paper to see if one constructor has more variation in measurements than other constructors. To achieve this, we made a comparison between the square root of AVE and the correlation between the constructor and another constructor. The results in table 6 show that discriminant validity was met.

If this criterion is not met, then there is a problem with your questionnaire, thus, the items you claim are unrelated are in fact related.

4.3 Structural model analysis

To test the hypotheses formulated, we used structural model analysis. This model was used to test the relationships between GMk practices, environmental protection attitude, environmental issues, green consumer identification and green product purchase and the sustainable behavior of Generation Z consumers. In addition, we tested the relationships between the sustainable behavior of Generation Z consumers and the environmental protection, and the degree of satisfaction of the green consumer.

Table 7 shows the relationships between the variables and the significance of the relationship. Analyzing these results, we can see that there is no relationship between green marketing practices of organizations, environmental issues and green consumer identification and the sustainable behavior of Generation Z consumers (the β coefficient values are: β = 0.003, β = 0.009 and 0.091, respectively, for a significance threshold of 1%). As a result of these tests, hypotheses H1, H3 and H4 were not validated. Regarding the relationship with the sustainable behavior of Generation Z consumers, we can see that there is a positive relationship, both with the satisfaction it conveys to the consumer and with their environmental protection activities, so that hypotheses H2, H5, H6 and H7 were validated. The explained variation for the model verifies the relationship of sustainable behavior and is R^2 = 0.517, while for the relationship between behavior and satisfaction it is R2 = 0.537. The relationship between sustainable behavior and environmental protection activities has a coefficient of determination of R^2 = 0.181.

Table 8 in annex A shows the results of the structural model presented in Figure 2 and the relationships among the items.

5 Discussion

In this study we used structural analysis (SEM), which tested the following hypotheses:

Hypothesis 1 (H1): There is a direct and significant relationship between the GMkP of organizations and the sustainable behavior of Generation Z consumers.

With respect to this hypothesis, we found that there was no significant difference in responsible consumption behavior regarding the green marketing practices (β = 0.003, p = 0.896), which means that the null hypothesis is accepted and it can be inferred that green marketing practices do not affect sustainable consumer behavior. So H1 is not supported. This phenomenon is explained by the fact that GMkP is not known and implicitly adopted in their entirety (Bhavana and Thiruchanuru, 2018) even if young people have several objectives related to the social and ecological side (Kılıç et al., 2021). From this point of view, the members of Generation Z have grown up in an environment with a high level of awareness regarding the importance of environmental responsibility. As a result of school education, they learned the benefits of recycling, with a strict future approach, regarding GMk and GMkP (Líšková et al., 2016) concepts that are critical to be correctly understood by young people (Baran et al., 2016). Although the concepts of GMk and GMkP have been known since primary grades (Lerch, 2020), the conclusion of our study shows that GMkP does not affect sustainable consumer behavior. Some studies have shown correlations between GMkP and the behavior of Generation Z through actions that manage to connect with young people's preferences (Budac, 2014; Dabija et al., 2019; Adisa et al., 2021), as well as the lack of correlations, through the existence of higher expectations among consumers who have less pro-sustainability manifestations (Parzonko et al., 2021). Focusing organizations on creating, recreating, and delivering sustainable practices will help in a time horizon depending on the degree of knowledge of Gen Z consumer behavior, with results regarding the development of sustainable behavior.

Hypothesis 2 (H2): This hypothesis was tested using the structural model, and the results show that there is a statistically significant relationship, so that H2 is accepted, proving that there is a relationship between the attitude towards the environment and sustainable consumer behavior. Sustainable consumer behavior is a good reason for increasing responsibility among young people concerned about it. Thus, consumers have implemented GMk measures in their purchasing behavior and implicitly to protect the environment (Suki

TABLE 8 Regression Weights: (Group number 1 - Default model).

			Estimate	S.E.	C.R.	P
Sustainable_behaviour	<---	Green_Practices	0.003	0.026	0.131	0.896
Sustainable_behaviour	<---	Environmental_protection_attitude	0.239	0.026	9.232	***
Sustainable_behaviour	<---	Environmental_issues	0.009	0.027	0.321	0.749
Sustainable_behaviour	<---	Green_product_purchase	0.468	0.031	15.097	***
Sustainable_behaviour	<---	Consumer_identification	0.091	0.059	1.534	0.125
Environmental_protection	<---	Sustainable_behaviour	0.504	0.058	8.758	***
Consumer_satisfaction	<---	Sustainable_behaviour	0.981	0.056	17.470	***
Agreement3	<---	Environmental_protection	1.000			
Agreement4	<---	Environmental_protection	0.992	0.109	9.114	***
I34statements1	<---	Consumer_satisfaction	1.000			
I34statements2	<---	Consumer_satisfaction	0.962	0.026	37.541	***
I34statements3	<---	Consumer_satisfaction	0.976	0.029	33.669	***
I34statements4	<---	Consumer_satisfaction	0.910	0.027	33.462	***
I34afirmatii5	<---	Consumer_satisfaction	0.915	0.026	35.004	***
I34afirmatii6	<---	Consumer_satisfaction	0.971	0.027	35.565	***
I33agreement1	<---	Sustainable_behaviour	1.000			
I33agreement2	<---	Sustainable_behaviour	1.076	0.063	17.104	***
I33agreement3	<---	Sustainable_behaviour	1.216	0.059	20.583	***
I33agreement4	<---	Sustainable_behaviour	1.222	0.067	18.248	***
I33agreement5	<---	Sustainable_behaviour	1.359	0.065	21.022	***
I33agreement6	<---	Sustainable_behaviour	1.248	0.069	18.033	***
I33agreement7	<---	Sustainable_behaviour	1.337	0.071	18.949	***
I33agreement8	<---	Sustainable_behaviour	1.306	0.065	19.937	***
I33agreement9	<---	Sustainable_behaviour	1.280	0.062	20.486	***
I33agreement10	<---	Sustainable_behaviour	1.037	0.061	17.097	***
Practices1	<---	Green_Practices	1.000			
Practices2	<---	Green_Practices	0.971	0.026	36.740	***
Practices3	<---	Green_Practices	1.023	0.031	33.514	***
Practices4	<---	Green_Practices	1.009	0.033	30.253	***
Practices5	<---	Green_Practices	1.018	0.037	27.284	***
Practices6	<---	Green_Practices	1.019	0.032	31.829	***
Practices7	<---	Green_Practices	0.956	0.027	35.625	***
Practices8	<---	Green_Practices	1.041	0.029	36.444	***
CV1	<---	Environmental_protection_attitude	1.000			
CV2	<---	Environmental_protection_attitude	1.006	0.035	28.600	***
CV3	<---	Environmental_protection_attitude	0.996	0.040	24.636	***
CV4	<---	Environmental_protection_attitude	0.989	0.035	27.948	***
CV5	<---	Environmental_protection_attitude	1.012	0.035	28.609	***
CV6	<---	Environmental_protection_attitude	0.987	0.041	24.235	***

(Continued on following page)

TABLE 8 (*Continued*) Regression Weights: (Group number 1 - Default model).

			Estimate	S.E.	C.R.	P
PM1	<---	Environmental_issues	1.000			
PM2	<---	Environmental_issues	0.978	0.038	25.987	***
PM3	<---	Environmental_issues	1.007	0.038	26.392	***
PM4	<---	Environmental_issues	0.971	0.041	23.489	***
PM5	<---	Environmental_issues	1.056	0.041	25.929	***
PM6	<---	Environmental_issues	0.977	0.037	26.709	***
PM7	<---	Environmental_issues	1.024	0.043	24.063	***
PM8	<---	Environmental_issues	1.017	0.037	27.307	***
PM9	<---	Environmental_issues	1.015	0.044	22.897	***
PM10	<---	Environmental_issues	0.997	0.039	25.530	***
Green_consumer_quality1	<---	Consumer_identification	1.000			
Green_consumer_quality2	<---	Consumer_identification	0.546	0.133	4.111	***
Green_consumer_quality4	<---	Consumer_identification	1.727	0.228	7.571	***
Green_consumer_quality5	<---	Consumer_identification	3.392	0.401	8.457	***
Green_consumer_quality6	<---	Consumer_identification	2.490	0.304	8.187	***
Green_consumer_quality7	<---	Consumer_identification	3.311	0.394	8.398	***
Green_consumer_quality8	<---	Consumer_identification	1.299	0.195	6.664	***
Green_consumer_quality9	<---	Consumer_identification	3.101	0.370	8.372	***
Green_consumer_quality10	<---	Consumer_identification	3.193	0.390	8.188	***
Purchase1	<---	Green_product_purchase	1.000			
Green_consumer_quality11	<---	Consumer_identification	0.551	0.135	4.081	***
Purchase2	<---	Green_product_purchase	1.006	0.043	23.484	***
Purchase3	<---	Green_product_purchase	0.626	0.041	15.381	***

and Suki, 2019) even though the study by Nguyen (2021) shows that there are representatives of Generation Z whom GMkP measures adopted by companies do not influence. Therefore the intention to purchase green products is rare, random, or non-existent. Our research results differ from these studies, as the findings suggest a relationship between the attitude towards the environment and green consumption behavior. Moreover, some studies emphasize the importance that protecting the environment and sustainable behavior has on the characteristics of Generation Z (Malikova, 2021), both through the awareness and application of purchase decisions and through the implementation of principles aimed at respect for the environment (Noor et al., 2017). Generation Z is aware of the importance of protecting the environment by acting in this direction with increasingly safe and efficient steps. Generation Z has particularities in consumer behavior in choosing green products, which leads manufacturers and retailers to consider the development, promotion, and sale of this particular category of products, namely green products (Dabija et al., 2020).

Hypothesis 3 (H3): There is a direct and significant relationship between the perception of environmental issues and the sustainable behavior of Generation Z consumers.

This hypothesis was tested using the structural model and the results show that there is not a statistically significant relationship between environmental issues and sustainable consumer behavior ($\beta = 0.009$, $p = 0.749$). The null hypothesis is accepted and can be inferred that the environmental issues do not affect the sustainable consumer behavior (H3 is not validated) even though environmental issues are a significant source of concern for many people around the world (Ștefănică et al., 2020). Moreover, the findings of our study refute to some extent the conclusions obtained by Chen et al. (2018) which show us that in Taiwan the degree of awareness of environmental issues has also increased for Generation Z consumers. Also, Hidayat and Hidayat (2021) showed that the majority of Generation Z youths show deep concern about the negative implications of a development that has consequences for environmental sustainability. However, from a theoretical point of view, the studies initiated still do not directly distinguish a correlation between environmental issues and the sustainable behavior of the analyzed generation (Arora and Manchanda, 2022; Djafarova and Foots, 2022), which determines the identification of some sustainable concerns that Generation Z has, and which can constitute the guarantee that

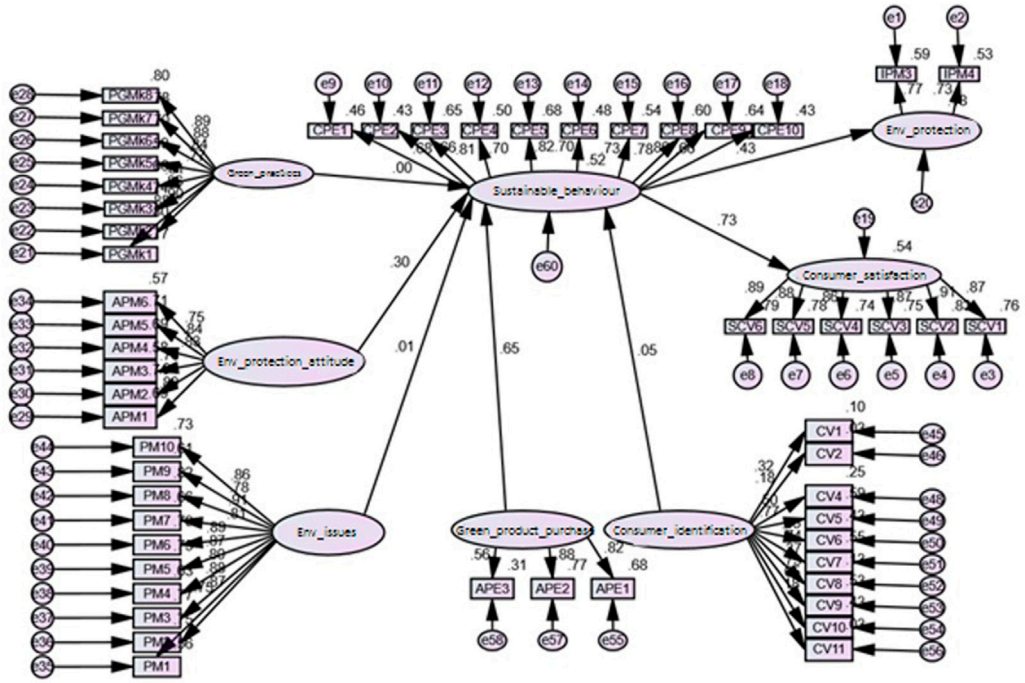

FIGURE 2
Structural model.

young consumers, through their behavior, will positively influence the quality of the environment.

Hypothesis 4 (H4): There is a direct and significant relationship between the degree of identification with the green consumer and the sustainable behavior of Generation Z consumers.

This hypothesis was tested using the SEM analysis and it is not validated. There is no relationship between green consumer identification and sustainable consumer behavior and it is supported by the value of the coefficient $\beta = 0.009$, with p-value $p = 0.749$). Therefore, H4 is not validated. The fact that there is no relationship between the identification of the ecological consumer and the sustainable behavior of the consumer, this aspect determines a behavior of individuals (Ștefănică et al., 2021) which is not always correlated with their perception of an ecological consumption behavior, the latter being negative, in discrepancy with personal perceptions regarding the concepts in their entirety (Deliana and Rum, 2019), which confirms the results obtained from our study. So, although the purchasing power of Generation Z exceeds that of Generation Y, it causes Generation Z to allocate a smaller budget for purchasing green products (Kowalska et al., 2021), which confirms that there is no relationship between identification of the ecological consumer and his sustainable behavior. Also, there are studies that address both the concept of the green consumer and that of sustainable behavior, without an automatic connection between the two being strongly highlighted (Casalegno et al., 2022; Casalegno et al., 2022). Although distinctly, Generation Z does not fully identify with a particular sphere of consumption, their decisions are filtered through attention to what constitutes sustainable behavior.

Hypothesis 5 (H5): There is a direct and significant relationship between the willingness to purchase a green product and the sustainable behavior of Generation Z consumers.

With respect to this hypothesis, we found that there was a significant difference in sustainable consumer behavior regarding the purchase of green products ($\beta = 0.468$, $p = 0.000$), which means that the null hypothesis is not accepted and it can be inferred that the purchase of green products does affect responsible consumption behavior. So H5 is supported. The conclusions of the present study are similar to those obtained by Gómez-Román et al. (2020) showing that although there is an ecological consciousness of Generation Z, in certain periods there is a lack of motivation, which prevents them from putting into practice the spirit necessary for the desire to buy an ecological product. In this sense, studies show us that any purchase behavior of an ecological product will be modified for the benefit of society (Gierszewska and Seretny, 2019), and the ecological purchase behavior of Generation Z representatives regarding the purchase of ecological products will be more frequent (Jaciow and Wolny, 2021). People who are typologically included in Generation Z cohorts manifest and materialize intentions to purchase ecological products, more pronounced than other generations and also in relation to the area of origin (Dąbrowski et al., 2022; Liang et al., 2022). Through the means that countries, organizations, promoters of sustainable consumption will have at their disposal and will use, they will be able to guide Generation Z towards the consumption of ecological products, responsibly and sustainably.

Hypothesis 6 (H6): The sustainable behavior of Generation Z consumers has a positive and significant influence on environmental protection.

Results show a positive correlation between sustainable consumer behavior and the environmental protection ($\beta = 0.504$, $p = 0.000$). Hypothesis H6 is also validated. The results of our study are not correlated with those obtained in the research conducted by Parzonko et al. (2021) who showed that representatives of Generation Z in Poland are

less involved in pro-environmental behaviors than people from previous generations. This aspect is probably due to the fact that representatives of Generation Z show different behavior patterns, and show a greater interest in actively participating in social issues, as well as an increased responsibility towards the environment (Song et al., 2020). Sustainable behavior is included in the panel of possible and very important means of protecting the environment. This practice is also adopted among the representatives of Generation Z, who through their contribution make a major contribution to improving environmental conditions (Chaturvedi et al., 2020; Tran et al., 2022). The behavior of this generation can further guide the behavior of future generations towards the right approach to environmental habits and practices.

Hypothesis 7 (H7): The sustainable behavior of Generation Z consumers has a positive and significant influence on their satisfaction.

The results show that there is a positive correlation between sustainable consumer behavior and consumer satisfaction. Therefore, there is a positive effect, which is confirmed by the coefficient of the exogenous variable. So, the hypothesis H7 is validated. The positive correlation between sustainable consumer behavior and consumer satisfaction shows that we align with the results highlighted by the studies carried out by Ștefănică and Butnaru (2019), especially since, as Anders (2021) also shows us, Generation Z is the one that will dictate many of the guidelines and strategies future of the companies, including the trends that will manifest themselves on the labor market. A similar opinion is shared by Dabija et al. (2019) who support the fact that the young people of Generation Z express a very strong interest in sustainable development and social responsibility and tend to get involved in actions to protect the environment because they bring them great satisfaction (Ștefănică and Sandu, 2019). Generation Z is more inclined than other generations to purchase ecological products in terms of the satisfaction received (Suchanek and Szmelter-Jarosz, 2019; Cui et al., 2022). This generation is aware of the positive impact and the consistent size of their own and collective contribution to protecting the environment, elements that determine a specific satisfaction.

6 Theoretical contributions, practical implications and future implications

This study also brings theoretical contributions, constituting real support for the current and future practical side of all directly or indirectly stakeholders. Both academics and practitioners may use it as a starter for developing future research or designing market policies addressed to this consumer group, Generation Z. The following paragraphs develop these considerations and present in detail our research contribution and value for stakeholders.

6.1 Theotetical contributions

In this article, shaped as an extensive documentation and empirical research, we analyzed the elements which complete the profile of the green consumer, aspects related to the behavior of the consumer as a representative of Generation Z, as well as the GMk practices of the organizations in the context of their adaptation to the new requirements of the profile market. The results found confirmed the theories stated by Su et al. (2019), Krasulja et al. (2020), who mention the fact that the profile of the green consumer of Generation Z has different characteristics compared to other generations, because millennials are much more informed, they choose to purchase environmentally friendly products, they are more pragmatic, avoiding to waste food, and the main GMkP activities of the organizations sensitize them and shape their purchasing and consumption behavior of green products.

At the same time, although the young age sometimes prevents the young people of Generation Z from converting their opinions and intentions regarding the purchase of green products into actual purchases, due to financial limitations, their attitudes and knowledge can contribute to the formation of an appropriate behavior of purchasing green products and appreciation of GMkP activities of organizations, both for the current generation and for future generations.

Generation Z no longer ignorantly considers the green concepts, the characteristics of green products, environmental protection or the methods of preventing pollution through their own activities; this is the generation born in the middle of these transformations, and they assimilated and perceived them naturally. In this context, we can say that the young people of Generation Z are not only the human category who best feels the importance of GMK measures and practices, but can also be the best promoters of these concepts for the previous generations, who to a large extent become more arduously familiar with these elements. Generation Z is educated to desire healthy, green products, but they are trying to identify them at good prices, which is why organizations need to streamline both their production costs and promotion practices, without greatly affecting the final price.

Generation Z consumers show concern for the natural environment and this aspect is visible in their behavior and purchase reaction regarding products on the green market. In the consumption profile studied, the focus is oriented from quantity to quality. The practice of a sustainable behavior induces the consumers' feeling of satisfaction, caused by the awareness of the contribution both to environmental protection and to the practice of a healthy lifestyle, through a suitable diet, with green products.

Studies in the field highlight the preponderance of women as purchasers of green products, both for previous generations and for Generation Z. This results in a greater propensity to purchase green products on the part of the women, a fact that should not be confused with the degree of consumption of environmental friendly products related to people gender. It is well-known that in most cases the representatives of the female gender carry out the supply process for the family/group/union (Chen and Chai, 2010), an element which confirms the presumption of fair consumption of green products distributed by gender. The attempt to define an absolute green purchasing profile and consumption for Generation Z is still being observed and analyzed, because the reactions, personal implications, affinities, perceptions are not stabilized in order to be able to build a standard profile, but what is clearly reflected until now confirms the fact that we are talking about a more mature, conscious, economical generation, with an emphasis on the principles of a healthy life, in agreement with the norms of environmental protection. The first years of professional activity for Generation Z largely coincided with the onset of the COVID-19 pandemic, which influenced certain

components of their natural behavior, given the state of uncertainty experienced, with multiple emotional connotations (Butnaru et al., 2021). The coming years will be able to stabilize the behavior, perception and profile of the Generation Z consumer of green products, including the exact determination of the impact of green marketing practices. The premises are promising, the behavior of Generation Z is currently sustainable, with an emphasis on environmental values and healthy consumption. This study aimed to identify the pattern of behavior and consumption of the young people of Generation Z at present, both in terms of the impact on environmental protection and the satisfaction given by the consumption of green products and the correlation of this pattern with the GMk practices of the organizations.

Our article contributes to strengthening the relationship between actual GMk practices targeting Generation Z and research by identifying particular consumption factors. Based on this perspective, the research validates the hypotheses through structural model analysis, while also providing from a theoretical perspective the image reflected in the research of the existing approaches, which must be constantly updated and adapted, in accordance with the ever-changing challenges and trends.

We believe that the main research limits are determined by the dynamism of the phenomenon illustrated over time, as well as the flexibility of consumption trends, which means adaptation to changes both by researchers and especially by producers. These limits require a close and uninterrupted collaboration between research and production, with the aim of adapting to the consumption profile of Generation Z. Through further analysis and research, we can contribute to shaping a realistic and current profile, which will come to the aid of researchers and companies, even of consumers of green products in the process of self-knowledge of the determining factors of consumption.

6.2 Practical implications

The results of this research, carried out following an extensive and refined collaborative documentation process, can be successfully integrated into the future strategic and operational activity of the main stakeholders that include or follow distinctly in establishing the profile of the target consumer Generation Z: businesses, managers, the academic environment, including consumers. From the managerial perspective, the research presents practical implications because it illustrates how Generation Z relates to environmental issues, the influencing factors in substantiating the purchase or consumption decision, concerns for ecological consumption, and environmental protection. Moreover, it is essential as it partly presents the influence of GMk practices of the companies on the behavior and the desire to involve or support sustainable consumption. These aspects can be taken into account in substantiating operating decisions. Thus, at the managerial level, companies worldwide should adopt ecological strategies and actively implement green marketing practices to promote as best as possible among consumers. On the one hand, it is necessary to know their customers as well as possible, the particularities of their consumption behavior, and the principles and rationales underlying the adoption of sustainable behavior. On the other hand, it is necessary to build a green production system valid for the entire product cycle, continue developing green products and processes, and have green supply chains that integrate as many ecological practices as possible. The field researched is not a static one, it requires systematic updates to get the most current, relevant and easy-to-implement data within the management systems of the actors on the green product market.

It is necessary to start innovative, sustainable businesses that incorporate green marketing practices from the planning and design phase, so that a business model that can be replicated and promoted, as a reference for those who want to transform their businesses into green, sustainable ones, and this study can provide some relevant elements of support. At the same time, in supporting such businesses, governments also have an essential role, encouraging this kind of initiative by offering financial and fiscal assistance to promote ecological practices or by implementing a system to protect intellectual property and improving the continuous improvement of environmental standards.

6.3 Future implications

This study aimed to identify the pattern of behavior and consumption of the young people of Generation Z at present, both in terms of the impact on environmental protection and the satisfaction given by the consumption of green products and the correlation of this pattern with the GMk practices of the organizations.

The academic environment relates to this type of research from a double standpoint: to continue the research of the described phenomenon through the prism of the background substantiated by the authors and the possibility of deepening the topic, and at the same time, from the position of the party that manifests a direct interaction with the representatives of Generation Z, through the possibility of knowing and understanding more effectively the actions of this generation and the foundation of future activity plans, specific to the needs of young people. From the consumers' perspective, the results suggest that responsible consumption, environmental actions, and awareness may have a significant impact at the individual level and on the environment. It can stimulate Generation Z consumers to perpetuate responsible behaviour and, at the same time, raise the awareness of other generations regarding the consumption of ecological products, leaning towards responsible consumption, paying more attention to GMkP campaigns, and involvement in environmental protection activities.

The validity of the results found in this extensive study offers the possibility both to the authors and to other researchers with study interests in this field to continue the analysis from an advanced stage. The future directions allow taking over the results obtained in this ample approach and improving their operationalization in order to build future models of management of GMkP, with impact in modelling the purchasing behavior of the new Generation Z.

We are encouraged, following the analyses performed, to deepen the research through further research, not necessarily due to reasons determined by principles or lacunar previous research, but for the permanent needs required by this field of

orientation of generational green marketing practices of companies.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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References

Adisa, I., Adeola, O., and Oparison, A. (2021). Harnessing the potentials of generation green for green marketing success in africa's emerging economies. *Palgrave Stud. Mark. Emerg. Econ.* 131, 131–149. doi:10.1007/978-3-030-73007-9_9

Ahmad, S. N. B., and Omar, A. (2018). Influence of perceived value and personal values on consumers repurchase intention of natural beauty product. *Int. J. Sup. Chain. Mgt* 7 (2), 116–125.

Aizawa, H., Yoshida, H., and Sakai, S. (2008). Current results and future perspectives for Japanese recycling of home electrical appliances. *Resour. Conservation Recycl.* 52 (12), 1399–1410. doi:10.1016/j.resconrec.2008.07.013

Anders, E. (2021). *Generation Z and their perception towards the working environment*. Munich: GRIN Verlag.

Andronie, M., Gardan, D. A., Dumitru, I., Gardan, I. P., Andronie, I. E., and Uta, C. (2019). Integrating the principles of green marketing by using big data. *Good Pract.* 21 (50), 258. doi:10.24818/ea/2019/50/258

Arora, N., and Manchanda, P. (2022). Green perceived value and intention to purchase sustainable apparel among Gen Z: The moderated mediation of attitudes. *J. Glob. Fash. Mark.* 13 (2), 168–185. doi:10.1080/20932685.2021.2021435

Bailey, A. J., Wills, C. M., and Mitchem, J. (2022). Attitudes towards climate change and scientific stories. *J. Environ. Stud. Sci.* 12, 714–726. doi:10.1007/s13412-022-00770-0

Bakewell, C., and Mitchell, V. (2003). Generation Y female consumer decision-making styles. *Int. J. Retail Distribution Manag.* 31 (2), 95–106. doi:10.1108/09590550310461994

Barber, N., Taylor, D. C., and Dodd, T. (2009). The importance of wine bottle closures in retail purchase decisions of consumers. *J. Hosp. Mark. Manag.* 18 (6), 597–614. doi:10.1080/19368620903025014

Barbiroglio, E. (2019). Generation Z fears climate change more than anything else. Available at: https://www.forbes.com/sites/emanuelabarbiroglio/2019/12/09/generation-z-fears-climate-change-more-than-anything-else/. (Retrieved July 25, 2022).

Bhatia, M., and Jain, A. (2014). Green marketing: A study of consumer perception and preferences in India. *Electron. Green J.* 1 (36). doi:10.5070/g313618392

Bhavana, A., and Thiruchanuru, S. (2018). Green marketing: Gap analysis in the decision making process of a green consumer. *J. Bus. Manag. Soc. Sci. Res. (JBM&SSR)* 7 (3), 2319.

Bojkovska, K., Dojchinovski, T., Jankulovski, N., Joshevska, E., and Najdovski, B. (2017). Contemporary approaches for consumer segmentation according to the level of ecological responsibility: The case of republic of Macedonia. *Food Environ. Saf. J.* 15 (2), 155–164.

Bromwich, J. E. (2018). We asked generation Z to pick a name. It wasn't generation Z. Available at: https://www.nytimes.com/2018/01/31/style/generation-z-name.html.

Brosdahl, D. J. C., and Carpenter, J. M. (2011). Shopping orientations of us males: A generational cohort comparison. *J. Retail. Consumer Serv.* 18 (6), 548–554. doi:10.1016/j.jretconser.2011.07.005

Brough, A. R., Wilkie, J. E. B., Ma, J., Isaac, M. S., and Gal, D. (2016). Is eco-friendly unmanly? The green-feminine stereotype and its effect on sustainable consumption. *J. Consumer Res.* 43 (4), 567–582. doi:10.1093/jcr/ucw044

Budac, A.-C. (2014). Strategic considerations on how brands should deal with generation Z. *Rev. Econ.* 66 (5), 6–14.

Bulut, Z. A., Kökalan Çımrin, F., and Doğan, O. (2017). Gender, generation and sustainable consumption: Exploring the behaviour of consumers from Izmir, Turkey. *Int. J. Consumer Stud.* 41 (6), 597–604. doi:10.1111/ijcs.12371

Bumbac, R., Bobe, M., Procopie, R., Pamfilie, R., Giușcă, S., and Enache, C. (2020). How zoomers' eating habits should be considered in shaping the food system for 2030—a case study on the young generation from Romania. *Sustainability* 12 (18), 7390. doi:10.3390/su12187390

Butnaru, G. I., Haller, A.-P., Dragolea, L.-L., Anichiti, A., and Tacu Hârșan, G.-D. (2021). Students' wellbeing during transition from onsite to online education: Are there risks arising from social isolation? *Int. J. Environ. Res. Public Health* 18 (18), 9665. doi:10.3390/ijerph18189665

Calk, R., and Patrick, A. (2017). Millennials through the looking glass: Workplace motivating factors | the journal of business inquiry. *J. Bus. Inq.* 16 (2), 131–139.

Campbell-Arvai, V., Arvai, J., and Kalof, L. (2012). Motivating sustainable food choices. *Environ. Behav.* 46 (4), 453–475. doi:10.1177/0013916512469099

Casalegno, C., Candelo, E., and Santoro, G. (2022). Exploring the antecedents of green and sustainable purchase behaviour: A comparison among different generations. *Psychol. Mark.* 39 (5), 1007–1021. doi:10.1002/mar.21637

Chandra, S. (2019). A conceptual understanding of Green marketing in the Indian context. *Int. J. Commer. Manag. Res.* 5 (3), 80–87.

Chaturvedi, P., Kulshreshtha, K., and Tripathi, V. (2020). Investigating the determinants of behavioral intentions of generation Z for recycled clothing: An evidence from a developing economy. *Young Consum.* 21 (4), 403–417. doi:10.1108/yc-03-2020-1110

Chen, M.-H., Chen, B. H., and Chi, C. G. (2018). Socially responsible investment by generation Z: A cross-cultural study of Taiwanese and American investors. *J. Hosp. Mark. Manag.* 28 (3), 334–350. doi:10.1080/19368623.2019.1525690

Chen, T. B., and Chai, L. T. (2010). Attitude towards the environment and green products: Consumers' perspective. *Manag. Sci. Eng.* 4 (2), 27–39. doi:10.3968/j.mse.1913035X20100402.002

Cherian, J., and Jacob, J. (2012). Green marketing: A study of consumers' attitude towards environment friendly products. *Asian Soc. Sci.* 8 (12), 117. doi:10.5539/ass.v8n12p117

Choi, Y., Kroff, M. W., and Kim, J. (2021). Developing brand advocacy through brand activities on Facebook. *J. Consumer Mark.* 38 (3), 328–338. doi:10.1108/jcm-10-2019-3460

Cui, Y., Lissillour, R., Chebeň, J., Lančarič, D., and Duan, C. (2022). The position of financial prudence, social influence, and environmental satisfaction in the sustainable consumption behavioural model: Cross-market intergenerational investigation during the Covid-19 pandemic. *Corp. Soc. Responsib. Environ. Manag.* 29, 996–1020. doi:10.1002/csr.2250

Dabija, D.-C., Bejan, B. M., and Pușcaș, C. (2020). A qualitative approach to the sustainable orientation of generation Z in retail: The case of Romania. *J. Risk Financial Manag.* 13 (7), 152. doi:10.3390/jrfm13070152

Dabija, D. C., Bejan, B. M., and Dinu, V. (2019). Transformations in business & economics. *Int. J. Sch. Pap.* 18. 47.

Dąbrowski, L. S., Środa-Murawska, S., Smoliński, P., and Biegańska, J. (2022). Rural–urban divide: Generation Z and pro-environmental behaviour. *Sustainability* 14 (23), 16111. doi:10.3390/su142316111

Dangelico, R. M., and Vocalelli, D. (2017). Green marketing": An analysis of definitions, strategy steps, and tools through a systematic review of the literature. *J. Clean. Prod.* 165 (0959-6526), 1263–1279. doi:10.1016/j.jclepro.2017.07.184

Davies, A., Titterington, A. J., and Cochrane, C. (1995). Who buys organic food? *Br. Food J.* 97 (10), 17–23. doi:10.1108/00070709510104303

Deliana, Y., and Rum, I. A. (2019). How does perception on green environment across generations affect consumer behavior? A neural network process. *Int. J. Consumer Stud.* 43 (4), 358–367. doi:10.1111/ijcs.12515

Diamantopoulos, A., Schlegelmilch, B. B., Sinkovics, R. R., and Bohlen, G. M. (2003). Can socio-demographics still play a role in profiling green consumers? A review of the evidence and an empirical investigation. *J. Bus. Res.* 56 (6), 465–480. doi:10.1016/s0148-2963(01)00241-7

Djafarova, E., and Foots, S. (2022). Exploring ethical consumption of generation Z: Theory of planned behaviour. *Young Consum.* 23 (3), 413–431. doi:10.1108/yc-10-2021-1405

Dospinescu, O., Anastasiei, B., and Dospinescu, N. (2019). Key factors determining the expected benefit of customers when using bank cards: An analysis on millennials and generation Z in Romania. *Symmetry* 11 (12), 1449. doi:10.3390/sym11121449

Eastman, J. K., and Liu, J. (2012). The impact of generational cohorts on status consumption: An exploratory look at generational cohort and demographics on status consumption. *J. Consumer Mark.* 29 (2), 93–102. doi:10.1108/07363761211206348

Fornell, C., and Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* 18 (1), 39–50. doi:10.2307/3151312

Gajda, J. (2020). Organization and management scientific quarterly. *Organ. Manag.* 4 (52), 1899. doi:10.29119/1899-6116.2020.52.1

Gelderman, C. J., Schijns, J., Lambrechts, W., and Vijgen, S. (2021). Green marketing as an environmental practice: The impact on green satisfaction and green loyalty in a business-to-business context. *Bus. Strategy Environ.* 30 (4), 2061–2076. doi:10.1002/bse.2732

Gierszewska, G., and Seretny, M. (2019). Sustainable behavior – the need of change in consumer and business attitudes and behavior. *Found. Manag.* 11 (1), 197–208. doi:10.2478/fman-2019-0017

Gómez-Román, C., Lima, M. L., Seoane, G., Alzate, M., Dono, M., and Sabucedo, J.-M. (2020). Testing common knowledge: Are northern Europeans and millennials more concerned about the environment? *Sustainability* 13 (1), 45. doi:10.3390/su13010045

Groening, C., Sarkis, J., and Zhu, Q. (2018). Green marketing consumer-level theory review: A compendium of applied theories and further research directions. *J. Clean. Prod.* 172 (1), 1848–1866. doi:10.1016/j.jclepro.2017.12.002

Guzel, T. (2020). Generation Z attitudes and preferences about eco-friendly furniture and furnishings. *Online J. Art Des.* 8 (4), 38–39.

Hansmann, R., Bernasconi, P., Smieszek, T., Loukopoulos, P., and Scholz, R. W. (2006). Justifications and self-organization as determinants of recycling behavior: The case of used batteries. *Resour. Conservation Recycl.* 47 (2), 133–159. doi:10.1016/j.resconrec.2005.10.006

Herberger, R. A. (1975). The ecological product buying motive: A challenge for consumer education. *J. Consumer Aff.* 9 (2), 187–195. doi:10.1111/j.1745-6606.1975.tb00562.x

Hicks, D. D., and Hicks, D. (2003). *Lessons for the future. The missing dimension in education*. 1st Edition168 London: Routledge. doi:10.4324/9780203219331

Hidayat, Z., and Hidayat, D. (2021). "Environmental sense of gen Z in online communities: Exploring the roles of sharing knowledge and social movement on instagram," in Proceedings of the 2nd Borobudur International Symposium on Humanities and Social Sciences, Magelang, Central Java, Indonesia, 18 November 2020, Bratislava, Slovakia: EAI – European Alliance for Innovation. doi:10.4108/eai.18-11-2020.2311741

Hojnik, J., Ruzzier, M., and Konečnik Ruzzier, M. (2019). Transition towards sustainability: Adoption of eco-products among consumers. *Sustainability* 11 (16), 4308. doi:10.3390/su11164308

Irianto, H. (2015). Consumers' attitude and intention towards organic food purchase: An extension of theory of planned behavior in gender perspective. *Int. J. Manag. Econ. Soc. Sci.* 4 (1), 17–31.

Jaciow, M., and Wolny, R. (2021). New technologies in the ecological behavior of generation Z. *Procedia Comput. Sci.* 192, 4780–4789. doi:10.1016/j.procs.2021.09.256

Jürkenbeck, K., Spiller, A., and Schulze, M. (2021). Climate change awareness of the young generation and its impact on their diet. *Clean. Responsible Consum.* 3, 100041. doi:10.1016/j.clrc.2021.100041

Kamenidou, I. C., Mamalis, S. A., Pavlidis, S., and Bara, E.-Z. G. (2019). Segmenting the generation Z cohort university students based on sustainable food consumption behavior: A preliminary study. *Sustainability* 11 (3), 837. doi:10.3390/su11030837

Kılıç, B., Bekar, A., and Yozukmaz, N. (2021). "The new foodie generation: Gen Z," in *Generation Z marketing and management in tourism and hospitality*, Berlin, Germany: Springer, 223–247. doi:10.1007/978-3-030-70695-1_9

Kowalska, A., Ratajczyk, M., Manning, L., Bieniek, M., and Mącik, R. (2021). Young and green" a study of consumers' perceptions and reported purchasing behaviour towards organic food in Poland and the United Kingdom. *Sustainability* 13 (23), 13022. doi:10.3390/su132313022

Krasulja, N., Ilić, D., and Marković, B. M. (2020). Basic principles of circular economy with special focus on sustainable consumption "Y" and "Z" generation. *Ecoforum* 9 (2), 7.

Kymäläinen, T., Seisto, A., and Malila, R. (2021). Generation Z food waste, diet and consumption habits: A Finnish social design study with future consumers. *Sustainability* 13 (4), 2124. doi:10.3390/su13042124

Lerch, M. (2020). Green marketing. Available at: https://is.muni.cz/th/coe7u/?lang=en (Retrieved February 1, 2022).

Liang, J., Li, J., and Lei, Q. (2022). Exploring the influence of environmental values on green consumption behavior of apparel: A chain multiple mediation model among Chinese generation Z. *Sustainability* 14 (19), 12850. doi:10.3390/su141912850

Líšková, Z. D., Cudlínová, E., Pártlová, P., and Petr, D. (2016). Importance of green marketing and its potential. *Visegrad J. Bioeconomy Sustain. Dev.* 5 (2), 61–64. doi:10.1515/vjbsd-2016-0012

Loria, K. (2018). Here's which generation you're part of based on your birth year — and why those distinctions exist. Available at: https://www.businessinsider.com/generation-you-are-in-by-birth-year-millennial-gen-x-baby-boomer-2018-3.

Lorincová, T., Ondrijová, I., and Kovaľová, J. (2019). "Personality traits and buying behavior from the viewpoint of selected socio-demographic characteristics – preliminary findings," in Third International Scientific Conference ITEMA Recent Advances in Information Technology, Tourism, Economics, Management and Agriculture, Bratislava, Slovakia, October 24, 2019, Belgrade: Association of Economists and Managers of the Balkans, Belgrade. doi:10.31410/itema.s.p.2019.99

Malikova, I. (2021). Perception of global issues of environment and circular economy by generation Z. *SHS Web Conf.* 92, 05018. doi:10.1051/shsconf/20219205018

May, V. (1991). Tourism, environment and development. *Tour. Manag.* 12 (2), 112–118. doi:10.1016/0261-5177(91)90065-2

Meredith, G., and Schewe, C. (2003). Defining markets, defining moments: America's 7 generational cohorts, their shared experiences, and why businesses should care. *J. Consumer Mark.* 20 (2), 172–173. doi:10.1108/07363760310464622

Mohd Suki, N. (2013). Young consumer ecological behaviour. *Manag. Environ. Qual. An Int. J.* 24 (6), 726–737. doi:10.1108/meq-02-2013-0010

Morgan, J. (2016). Generation Z and the 6 forces shaping the future of business. Available at: https://www.inc.com/jacob-morgan/generation-z-and-the-6-forces-shaping-the-future-of-business.html.

Mukonza, C., Hinson, R. E., Adeola, O., Adisa, I., Mogaji, E., and Kirgiz, A. C. (2021). "Green marketing: An introduction," in *Green marketing in emerging markets. Palgrave studies of marketing in emerging economies*. Editors C. Mukonza, R. E. Hinson, O. Adeola, I. Adisa, E. Mogaji, and A. C. Kirgiz (Cham: Palgrave Macmillan), 3–14. doi:10.1007/978-3-030-74065-8_1

Nadanyiová, M., and Gajanová, L. (2018). Consumers' perception of green marketing as a source of competitive advantage in the hotel industry. *Littera Scr.* 1 (1), 102–115.

Naidu, M. N., Sonawane, M. S., Mohod, M. A., and Pendam, M. B. (2020). A study of consumers attitude towards green marketing. *JournalNX - A Multidiscip. Peer Rev. J.* 65, 83–91.

Narula, S., and Sabharwal, D. (2016). The oritical study of green marketing in India: Its importance and need. *J. Mass Commun. Journalism* 06 (08). doi:10.4172/2165-7912.s2-007

Nguyen, N. M. D. (2021). Factors influencing Finnish Generation Z consumer behaviors towards green purchase of cosmetics. Available at: https://www.theseus.fi/handle/10024/493316. (Accessed: November 24, 2021).

Noor, M. N. M., Jumain, R. S. A., Yusof, A., Ahmat, M. A. H., and Kamaruzaman, I. F. (2017). Determinants of generation Z green purchase decision: A SEM-PLS approach. *Int. J. Adv. Appl. Sci.* 4 (11), 143–147. doi:10.21833/ijaas.2017.011.023

Parment, A. (2013). Generation Y vs. Baby Boomers: Shopping behavior, buyer involvement and implications for retailing. *J. Retail. Consumer Serv.* 20 (2), 189–199. doi:10.1016/j.jretconser.2012.12.001

Parzonko, A. J., Balińska, A., and Sieczko, A. (2021). Pro-environmental behaviors of generation Z in the context of the concept of Homo socio-oeconomicus. *Energies* 14 (6), 1597. doi:10.3390/en14061597

Pavan, M., and Payal, S. (2012). Green marketing: Challenges and opportunities for business. *J. Mark. Commun.* 8 (1), 35–41.

Peattie, K., and Crane, A. (2005). Green marketing: Legend, myth, farce or prophesy? *Qual. Mark. Res. An Int. J.* 8 (4), 357–370. doi:10.1108/13522750510619733

Pelikánová, R. M., and Hála, M. (2021). CSR unconscious consumption by generation Z in the COVID-19 era—responsible heretics not paying CSR bonus? *J. Risk Financial Manag.* 14 (8), 390. doi:10.3390/jrfm14080390

Polonsky, M. J. (1994). An introduction to green marketing. *Electron. Green J.* 1 (2), 31210177. doi:10.5070/g31210177

Polonsky, M. J. (2011). Transformative green marketing: Impediments and opportunities. *J. Bus. Res.* 64 (12), 1311–1319. doi:10.1016/j.jbusres.2011.01.016

Priporas, C.-V., Stylos, N., and Fotiadis, A. K. (2017). Generation Z consumers' expectations of interactions in smart retailing: A future agenda. *Comput. Hum. Behav.* 77 (1), 374–381. doi:10.1016/j.chb.2017.01.058

Puiu, S. (2016). Generation Z – a new type of consumers. *Young Econ. J./Revista Tinerilor Econ.* 13 (27), 67–78.

Reiners, B. (2020). A recruiter's guide to preparing for the gen Z workforce. Available at: https://builtin.com/recruiting/gen-z-workforce (Retrieved February 1, 2022).

Reyes, M. E. S., Carmen, B. P. B., Luminarias, M. E. P., Mangulabnan, S. A. N. B., and Ogunbode, C. A. (2021). An investigation into the relationship between climate change anxiety and mental health among Gen Z Filipinos. *Curr. Psychol.* 1, 1–9. doi:10.1007/s12144-021-02099-3

Saha, M., and Darnton, G. (2005). Green companies or green con-panies: Are companies really green, or are they pretending to Be? *Bus. Soc. Rev.* 110 (2), 117–157. doi:10.1111/j.0045-3609.2005.00007.x

Sarkar, A. N. (2012). Green branding and eco-innovations for evolving a sustainable green marketing strategy. *Asia-Pacific J. Manag. Res. Innovation* 8 (1), 39–58. doi:10.1177/2319510x1200800106

Schawbel, D. (2014). Gen Z employees: The 5 attributes you need to know. Available at: https://www.entrepreneur.com/article/236560.

Schwartz, S. E. O., Benoit, L., Clayton, S., Parnes, M. F., Swenson, L., and Lowe, S. R. (2022). Climate change anxiety and mental health: Environmental activism as buffer. *Curr. Psychol.* 1, 1–14. doi:10.1007/s12144-022-02735-6

Shiel, C., Paço, A., and Alves, H. (2020). Generativity, sustainable development and green consumer behaviour. *J. Clean. Prod.* 245, 118865. doi:10.1016/j.jclepro.2019.118865

Shrum, L. J., McCarty, J. A., and Lowrey, T. M. (1995). Buyer characteristics of the green consumer and their implications for advertising strategy. *J. Advert.* 24 (2), 71–82. doi:10.1080/00913367.1995.10673477

Shwetha, G. Y. (2019). A descriptive study on attitude of generation Z towards green behaviour. *Cape Comorin Res.* 1 (1), 30–35.

Singh, A., and Dangmei, J. (2016). Understanding the generation Z: The future workforce. *South-Asian J. Multidiscip. Stud.* 3, 1–5.

Smith, K. T., and Brower, T. R. (2012). Longitudinal study of green marketing strategies that influence Millennials. *J. Strategic Mark.* 20 (6), 535–551. doi:10.1080/0965254x.2012.711345

Song, Y., Qin, Z., and Qin, Z. (2020). Green marketing to gen Z consumers in China: Examining the mediating factors of an eco-label–informed purchase. *SAGE Open* 10 (4), 215824402096357–15. doi:10.1177/2158244020963573

Ștefănică, M., and Butnaru, G. I. (2019). Some good practices for reducing energy consumption in hotels: A comparative analysis. *J. E. U. Res. Bus.* 2019, 1–8. doi:10.5171/2019.985409

Ștefănică, M., Sandu, C. B., Butnaru, G. I., and Haller, A.-P. (2021). The nexus between tourism activities and environmental degradation: Romanian tourists' opinions. *Sustainability* 13 (16), 9210. doi:10.3390/su13169210

Ștefănică, M., and Sandu, C. B. (2019). Eco-practices â€" prerequisite for increasing the environmental performance and the social responsibility in hotel industry. *Ovidius Univ. Ann. Econ. Sci. Ser.* 21 (1), 546–553.

Ștefănică, M., Vodă, A. I., Butnaru, R. C., Butnaru, G. I., and Chirita, M. G. (2020). Ecological purchases made by managers in hotel industry. An approach of the main determining factors. *Amfiteatru Econ. J.* 22 (53), 1–57. doi:10.24818/EA/2019/53/57

Straub, D., and Gefen, D. (2004). Validation guidelines for IS positivist research. *Commun. Assoc. Inf. Syst.* 13 (24), 380–427. doi:10.17705/1cais.01324

Su, C.-H., Tsai, C.-H., Chen, M.-H., and Lv, W. Q. (2019). U.S. Sustainable food market generation Z consumer segments. *Sustainability* 11 (13), 3607. doi:10.3390/su11133607

Suchanek, M., and Szmelter-Jarosz, A. (2019). Environmental aspects of generation Y's sustainable mobility. *Sustainability* 11 (11), 3204. doi:10.3390/su11113204

Suki, N. M., and Suki, N. M. (2019). "Correlations between awareness of green marketing, corporate social responsibility, product image, corporate reputation, and consumer purchase intention.*Corp. Soc. Responsib.* 2019, 143–154. doi:10.4018/978-1-5225-6192-7.ch008

Tamer, B., and Popescu, C. (2016). Generation Z attitudes toward green marketing: A cross country and gender analysis. *Ann. - Econ. Ser.* 3, 6–9.

Tran, K., Nguyen, T., Tran, Y., Nguyen, A., Luu, K., and Nguyen, Y. (2022). Eco-friendly fashion among generation Z: Mixed-methods study on price value image, customer fulfillment, and pro-environmental behavior. *PLOS ONE* 17 (8), e0272789. doi:10.1371/journal.pone.0272789

Troumbis, A. Y. (1991). Environmental labelling on services: The case of tourism. *Ekistics* 58 (348/349), 167–173.

Tsakiridou, E., Boutsouki, C., Zotos, Y., and Mattas, K. (2008). Attitudes and behaviour towards organic products: An exploratory study. *Int. J. Retail Distribution Manag.* 36 (2), 158–175. doi:10.1108/09590550810853093

Võ, M. (2019). Engaging generation Z through corporate social responsibility. Available at: https://www.semanticscholar.org/paper/Engaging-Generation-Z-through-Corporate-Social-V%C3%B5/b8755c39803230384413cabb925753ae9c0a49aa.

Walters, P. (2021). "Are generation Z ethical consumers?," in *Generation Z marketing and management in tourism and hospitality*, Berlin, Germany: Springer, 303–325. doi:10.1007/978-3-030-70695-1_12

Williams, K., and Page, R. (2011). Marketing to the generations. *J. Behav. Stud. Bus.* 3 (1), 37–53.

Witek, L., and Kuźniar, W. (2020). Green purchase behavior: The effectiveness of sociodemographic variables for explaining green purchases in emerging market. *Sustainability* 13 (1), 209. doi:10.3390/su13010209

Wood, S. (2013). Generation Z as consumers: Trends and innovation. Available at: https://archive.iei.ncsu.edu/wp-content/uploads/2013/01/GenZConsumers.pdf.

Xie, G.-X., Cavallero, A., Cheng, M., Kahle, L. R., and Gurel-Atay, E. (2015). Communicating sustainability for the green economy. in *Reluctant for a reason? A persuasion knowledge perspective on green advertising*, 1st Ed. London:Routledge.

Yang, C., and Wu, C.-C. (2007). Gender and Internet consumers' decision-making. *CyberPsychology Behav.* 10 (1), 86–91. doi:10.1089/cpb.2006.9988

Yazdanifard, R., and Mercy, I. E. (2011). The impact of Green Marketing on Customer satisfaction and Envi-ronmental safety. Available at: https://www.semanticscholar.org/paper/The-impact-of-Green-Marketing-on-Customer-and-Envi-Yazdanifard-Mercy/cb3927334b3e89761d573caaf47cff55c22ec2d6.

Young, A. M., and Hinesly, M. D. (2012). Identifying millennials' key influencers from early childhood: Insights into current consumer preferences. *J. Consumer Mark.* 29 (2), 146–155. doi:10.1108/07363761211206393

Zhao, Z., Gong, Y., Li, Y., Zhang, L., and Sun, Y. (2021). Gender-related beliefs, norms, and the link with green consumption. *Front. Psychol.* 12, 710239. doi:10.3389/fpsyg.2021.710239