

Environmental Social Advertising. The Power of the Message, Controversies and Factors Determining its Effectiveness in an Intergenerational Approach

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Abstract

Environmental protection is one of the main challenges of our time. Public awareness campaigns can offer a significant support in dealing with this issue. The aim of the present study was to analyse relationships between the assessment of audio-visual messages (public awareness advertisements) pertaining to environmental protection and selected demographic characteristics of respondents associated with the generation they belong to (BB, X, Y and Z). The study sample included 600 individuals who were shown selected advertisements and then asked to complete survey questionnaires. When carrying out the empirical analysis, we used a test for the equality of two proportions to determine the significance of differences between group proportions. We also analysed the relationship between the perceived effectiveness and controversiality of the advertising messages and the degree of interest in environmental protection issues. The results indicate that audio-visual environmental advertising evokes similar emotions, albeit of different intensity, in the representatives of different generations. The intensity of these emotions tended to increase with the age of respondents. The predominant emotion was sadness and the least frequent one fear. The advertising messages analysed were considered to be controversial by one-third of all participants, the exception being the anti-smog campaign. The attitude of respondents towards environmental protection is of moderate importance for their assessment of advertising message effectiveness. The results offer a significant insight into public awareness campaigns focusing on environmental protection, thus providing a valuable foundation for effective activities of institutions and enterprises involved in designing such advertisements.

Keywords

Environmental Protection, Generations BB-X-Y-Z, Environmental Advertising, Social Marketing Campaigns, Audiovisual Message, Emotions, Marketing Communication, Theories of Social Marketing, Environmental Awareness, Generational Differences.



1. Introduction

Despite its numerous positive economic aspects, the process of globalisation is associated with specific environmental issues (Shahzadi *et al.*, 2019; Shujah-ur-Rahman *et al.*, 2019). These largely relate to the overexploitation of the natural environment due to anthropogenic activities. A growing number of countries strive to minimize this ongoing process, having acknowledged the essence of sustainable development and the importance of its social and health aspects. In the context of rapid and excessive anthropopressure and perhaps, above all, the need to preserve certain environmental resources, these endeavours should be considered a priority. Modern economic models and consumption patterns exert significant pressure on the natural environment, leading to the degradation of ecosystems and the loss of biodiversity. The increase in the average global temperature by 1.22°C in the years 2013-2023 and the poor condition of 80% of natural habitats in Europe necessitate urgent action to stop global warming and protect nature:

<https://www.consilium.europa.eu/en/policies/green-deal>

The European Union's projections indicate that in the absence of effective actions to reduce greenhouse gas emissions, economic losses could reach 12% of global GDP by the end of the 21st century, demonstrating that climate change poses not only an environmental challenge but also an economic one. According to the World Meteorological Organisation, the recent years have been some of the warmest on record, and the increase in the frequency of extreme weather events, such as heatwaves, droughts, and floods, has significantly affected the lives of millions of people:

<https://www.consilium.europa.eu/pl/8-ways-life-in-the-eu-is-becoming-greener>

The European Union, striving for climate neutrality, is implementing the European Green Deal, whose key tenets include the development of a circular economy and the elimination of pollution. However, the effects of climate change are not limited to environmental and economic aspects, but also include social and psychological consequences. Research shows that the increasing frequency of climate-related disasters is associated with rising levels of stress, anxiety, confusion, and depression among populations affected by these events (Mabahwi *et al.*, 2014). Furthermore, people's daily habits, such as improper waste disposal, water wastage, incorrect rubbish segregation, and plastic burning, contribute to further environmental degradation (Kousar *et al.*, 2022). Awareness of environmental problems plays a key role in shaping pro-environmental behaviours and is a significant motivating factor for nature conservation efforts (Schwegler; Petty, 2025). Such activities can be implemented with the use of various instruments, from consumer education programmes (Timmermans, 2020) to effective marketing tools created by the state, including extensive public awareness campaigns. By increasing social activity and promoting sustainable lifestyle, these initiatives contribute to building positive environmental attitudes of each generation.

Public campaigns promoting pro-ecological behaviours often make a substantial contribution to sustainable development, especially environmental protection through e.g., raising awareness and shaping daily consumer behaviour (Joshi; Rahman, 2017; Ober; Karwot, 2022; Szuszkiewicz, 2023). This allows for eliminating or limiting any dysfunctional environmental behaviours (Orzan *et al.*, 2013; Raducu *et al.*, 2020). This is an important insight, whose practical value is in line with the topical and urgent process of making conscious marketing decisions compliant with the principles of sustainable development. Consumer attitudes and behaviour can be shaped through the use of short audio-visual messages. Consumers' emotional affinity for nature and environmental values has a strong positive impact on green consumer behaviour. Therefore, the use of advertising messages with moral and emotional appeal in green communication may induce positive consumer behaviour (Taufique, 2020). Emotionally engaging advertisements are used to attract and hold the attention of the target audience (Matthes *et al.*, 2014). Green consumer behaviour is based on beliefs associated with perceived personal benefits, and altruistic and/or positive environmental consequences such behaviour entails (Jansson *et al.*, 2010). While previous studies have shown the potential of emotional stimuli to enhance perception and recall (Dolcos; Denkova, 2014), there remains a gap in understanding how these perceptions vary across generations.

The aim of the present study is to analyse relationships between the assessment of audio-visual messages (public awareness advertisement) pertaining to environmental protection and the generation of respondents (BB, X, Y and Z). We attempted to link the results of our analyses with the attitudes towards environmental protection declared by respondents. Our study focused on four significant environmental issues: water pollution, littering in one's immediate surroundings, smog, and the lack of care for rational water use.

Environmental social advertisements evoke similar emotions across generations, but emotional intensity increases with age

2. Literature Review/Theoretical Framework

In many countries, public matters are becoming increasingly complex. Industrialised societies feature new beneficiaries and face new challenges. Thus, there is a natural need to professionalise the approach to managing public affairs (Timmermans, 2020), which nowadays include issues related to environmental protection. It should be emphasised that

it is extremely difficult to clearly separate environmental issues from, for example, health issues, also in the context of social marketing (Jacobson *et al.*, 2018; Méndez, 2020). This stems from the latter's very nature and the interdependence of environmental issues with other aspects of modern societies.

Environmental issues are largely caused by human activities (Savari *et al.*, 2021). However, the human-environment symbiosis and a better understanding of these issues may constitute some sort of an antidote to the destructive effect of anthropopressure on the natural landscape (Abun *et al.*, 2021). Therefore, researchers should place particular focus on the social and psychological dimension of environmental problems (Amoah; Addoah, 2020). Importantly, each issue must be viewed in its context. Both individuals and organisations must cope with limitations in their ability to process information, including those occurring within the marketing space (Bowen *et al.*, 2024). In times of continuous environmental degradation and aggravating social problems, a very important role is played by public awareness campaigns, whose aim is to communicate relevant information to the target audience. Public campaigns and advertisements should promote positive attitudes and discourage negative behaviours. They should be easy to recall and, at the same time, emotional for recipients. These types of advertisements are often associated with an unpleasant and sometimes drastic form of communication. However, this is not the only solution. A pleasant message is also used in the marketing practice of social campaigns (Noble *et al.*, 2014; Yousef *et al.*, 2021). This is because their goal is to reach the entire or most of the population in a given country.

The effect of social marketing on the recipient is threefold (Carlsson *et al.*, 2021; Huang *et al.*, 2020; Poels; Dewitte, 2019):

- Cognitive – raising awareness of the problem and providing information about it,
- Emotional – evoking positive and negative emotions,
- Behavioural – eliciting pro-social behaviours and condemning and discouraging harmful or inappropriate attitudes.

These are also the main objectives of public awareness campaigns defined as a set of particular activities scheduled for a specific time period and targeting a specific group of recipients in order to increase knowledge on a given topic or elicit specific behaviours in relation to a given problem. The most important task of these campaigns is to achieve the common good (Lee; Kotler, 2020; Rossiter *et al.*, 2018).

Nowadays, consumer awareness of environmental behaviours and the use of natural resources is increasing, which may have a significant effect on the natural environment. This awareness can be fostered through e.g., social marketing campaigns in the form of ads broadcast in mass media (TV and Internet), and, at the same time, used to carry out in-depth analyses to build models that would explain and predict green consumer behaviours (Orzan *et al.*, 2013). However, some studies show that the effectiveness of such campaigns may be insufficient to achieve the set goals (Fernandez *et al.*, 2017). Brulle (2010) emphasises that campaigns like these are based on the assumption that environmental messages created by communication experts may have a positive influence on the public opinion, but their benefits are short-lived. The social mobilisation they entail does not occur on a large scale and does not provoke massive social and economic changes aimed at protecting specific natural resources. Emotions play a significant role in the effectiveness of social campaigns (Jäger; Eisend, 2013). However, their intensity varies depending on the type of message. It turns out that rational advertising messages are not as effective as their emotional counterparts. Furthermore, women respond more strongly to messages with a negative emotional appeal than men. In contrast, this difference is not observed in the case of positive and rational advertisements (Noble *et al.*, 2014). These interesting insights were one of the notions behind hypothesis one:

H1: Audio-visual environmental advertising messages trigger different emotional reactions in representatives of generations BB, X, Y and Z.

Advertising messages related to climate change and the perceived risks associated with it evoke negative emotions, such as fear. This, in turn, appears to be effective in motivating pro-social behaviour. Nevertheless, it turns out that messages using humour can be equally effective. Research has shown that marketing messages based on fear or humour also produced greater interest in climate change activist movements among respondents. Thus, their appeal to motivate action is high (Skurka *et al.*, 2018). This raises the question of whether this effectiveness might be conditioned by the specific issues addressed in the advertising messages and whether this could be a factor significantly influencing respondents' perceptions of these messages. Therefore, we formulated hypothesis two in following way:

H2: The content of environmental advertising may be a factor that significantly affects the perception of these messages (including emotions, effectiveness and controversy).

The design of advertising messages with self-reference and supported by strong emotional stimuli have the best effect in marketing practice (Kao; Du, 2020). This also applies to green advertising, which can be evaluated through the lens of the recipients' individual attitudes towards the content conveyed and their pro-environment intentions (Kim *et al.*, 2019). However, while researchers recognise that green advertising plays a significant role in marketing, the detailed requirements regarding the form of message delivery or the strategies employed for communicating these messages

remain unclear (**Kong; Zhang**, 2012). There is a lack of comprehensive theories that would guide actions undertaken in this area by state institutions and businesses. Thus, hypothesis three is as follows:

H3: The attitude of respondents towards the environment is important for assessing the effectiveness of advertising messages communicated in public campaigns on this subject.

Each of the aforementioned research assumptions can be supported by theories used in environmental marketing communication (**Rundle-Thiele et al.**, 2019). The Persuasive Communication Theory focuses on how a message can influence changes in attitudes, beliefs, or behaviours of recipients. Three elements are important in this context: the Source, which is based on the credibility and authority of the organisation delivering the message; the Message itself, defined as the degree of alignment with the values, interests, and emotions of recipients; and the Audience, their engagement, and openness to persuasion (**Bakir et al.**, 2018). Thus, this is a method of creating awareness to achieve specific goals. Importantly, people are naturally resistant to change. Therefore, to persuade them of something, the sender of the message must be genuinely convinced of the values presented in the advertisement (**Eisend; Tarrahi**, 2021). An example of its application in environmental social campaigns, which we analyse generationally in this study, is a fact-based, yet simple and emotional message delivered by state institutions.

The Elaboration Likelihood Model (ELM) of persuasive communication is a theory that describes how recipients process information (**Wagner; Petty**, 2022). These can be based on the Central Route, which involves deep engagement with the message content, logical arguments, data and facts, or the recipients' motivation and ability to engage in deeper scrutiny and analysis of the message content. In contrast, the Peripheral Route is characteristic of a less aware and engaged recipient (the message is processed superficially, based on emotions or visual attractiveness) (**Quesenberry**, 2020). Advertising messages in environmental social campaigns are in line with these theoretical assumptions. The generational structure of their audience is extensive and diverse. Thus, the paths of information processing may also differ. In turn, the Fear and Hope Appeals Theory explains how messages that use fear (e.g., fear of environmental pollution) and hope (e.g., for solving this problem) can influence people. The strong emotions built in this way motivate the audience to take action, provided that the solution to the problem is viable (**de Vries**, 2019; **Ettinger et al.**, 2021). In environmental campaigns, the Fear and Hope Appeals Theory seems to be a natural basis for creating advertising messages (**Ettinger et al.**, 2021; **Ropret Homar; Knežević Cvelbar**, 2021).

Social marketing is one of the methods for developing solutions to specific environmental issues that are of key importance for regional and global communities (**Catlin et al.**, 2017; **Dangelico; Vocalelli**, 2017; **Reading; Roxburgh**, 2024). This approach makes use of general marketing strategy rules when implementing social programmes such as information campaigns about the natural environment. These rules can include e.g., the analysis and segmentation of recipients, the analysis of marketing communication channels, the use of behavioural theories to create the marketing-mix or the determination of a timeframe facilitating effective institutionalisation and achievement of the campaign objectives. From a media presence perspective, the effectiveness of these actions can be supported by the message framing theory, which allows for highlighting and prioritising individual environmental issues (**Chang et al.**, 2015). It is worth remembering that the contemporary green activism pursued as a part of social engagement is a conglomerate co-created by complex networks of players, whose impact is felt at both the local and international level (**Kacar; Kartal**, 2014; **Porta; Rucht**, 2002). This thesis has been confirmed by **Lucas et al.** (2008), who analysed the effectiveness of authorities/policymakers in encouraging pro-environmental behaviours among their target recipients in the UK. They concluded that the future state policy in this field should encompass the introduction of comprehensive and multilevel programmes encouraging pro-environmental behaviours as a consequence of their complexity and non-linear nature.

Pro-environmental behaviours form a significant part of social change towards a more sustainable future and the literature provides abundant information on how emotions related to specific green activities contribute

to eco-friendly behaviours. This positive effect on pro-environmental behaviours is partially dependent on the declared concern for the environment and perceived consumer effectiveness (**Coelho et al.**, 2017).

Negative emotions triggered by ads can effectively encourage pro-environmental behaviours

That said, it is consumer behaviour analysis that constitutes one of the major aspects of interpreting complex phenomena encompassing potential changes in the approach towards environmental protection. The history of an individual's consumption is the function of utilitarian (learning via a given product) and informational consequences (learning via other persons/media, including public awareness campaigns). This approach can be used to interpret environmentally harmful behaviour (e.g., excessive use of private transportation, domestic energy and water consumption, or waste disposal) (**Foxall et al.**, 2006). What is also important in this context is the role of social sciences, which may prove significant in the process of environmental protection mediated by consumer behaviour. Social researchers stress the need for continuous studies and analyses of the problems in question, updating the objectives and potential corrective measures, placing greater emphasis on long-term pro-environmental behaviours and more effective dissemination of intervention strategies (**Lehman; Geller**, 2004).

We believe that social marketing campaigns are in line with this last proposition, as the use of mass media to conduct such campaigns has long been an attractive method of carrying out institutional responsibilities related to the promotion of good practices and the prevention of various social problems (Abroms; Maibach, 2008; Villodres *et al.*, 2014). Nevertheless, the effects of such campaigns remain largely unexplored. Their consistent analysis may help generate information useful for their future organisation and planning.

Generation Z shows the lowest concern for environmental issues, while Baby Boomers are the most engaged

3. Materials and Methods

The present study was based on a survey questionnaire and conducted among 600 Polish respondents representing four generations: BB – Baby Boomers (1946-1964), X – Gen X (1965-1980), Y – Gen Y/Millennials (1981-1996) and Z – Gen Z (1997-2012) (in this last case, the study sample was modified to include only individuals of legal age). The study group was gender balanced. The sampling method was based on population data for each generation in accordance with the age groups listed above. 150 survey questionnaires were administered within each generation. Next, each generation was analysed in terms of the gender ratio (Table 1). It is worth noting that in the case of BB, the difference in the number of men and women was slightly higher due to the fact that more women than men in this generation are still alive.

Table 1: Sampling Method by Generation and Gender of Respondents.

Generation	Female			Male		
Age	Population	%	N	Population	%	N
18-25 (Z)	1 496 695	0.49	74	1 554 754	0.51	76
26-41 (Y)	4 528 636	0.49	74	4 656 396	0.51	76
42-57 (X)	4 084 858	0.50	75	4 067 168	0.50	75
58-76 (BB)	4 696 594	0.56	84	3 720 299	0.44	66
Total	14 806 783	-	307	13 998 617	-	293

Source: Biostat® data.

Data were collected between 3-14 July 2023 by Biostat®, a company which has representative, standardized samples of respondents, as commissioned by the research team. More information about Biostat® can be found here:

https://www.biostat.com.pl/index_en.php

The study was conducted in the presence of a moderator who interacted with respondents and followed the established research procedure (see below). The study used the Computer-Assisted Web Interview (CAWI) technique and an online research panel 'Badanie Opinii' [in *Opinion Survey*].

The research procedure was as follows:

- 1) respondents watched four video ads that were a part of social campaigns conducted in Poland:

„Wody to nie śmietnik” [Water is not a dump]:

<https://www.youtube.com/watch?v=2H-uSqSjnU>

„Nie śmieć” [Don't litter]:

<https://www.youtube.com/watch?v=7Tb6J61r5hc>

„Nie truj sąsiada” [Don't poison your neighbour]:

<https://www.youtube.com/watch?v=0PdLOCuMgs0>

„Stop suszy” [Stop to drought]:

<https://www.youtube.com/watch?v=8D5f12dfbZQ>

- 2) Next, each respondent filled in a questionnaire consisting of several extensive questions regarding their approach towards environmental protection, effectiveness of the presented ads in building awareness of environmental protection, the extent of controversiality of the ads and emotions evoked by these ads. Emotions were evaluated in opposing pairs: anger – satisfaction, fear – peace, indifference – interest, sadness – joy.

The intensity of different traits (importance of a problem, controversiality, effectiveness) was assessed using a univariate, ordinal scale from 1 to 5. The results are presented on Likert scale charts. High intensity was defined as the percentage of respondents who chose two highest values (4 and 5), and low intensity as the percentage of those who selected two lowest values (1 and 2). The sums of these percentage values were recorded to the right and

Perceived effectiveness of ads is not strongly correlated with self-declared environmental interest

left sides of the charts.

Emotions were studied using the semantic differential scale by providing respondents with pairs of opposing emotions and asking them to rate their intensity on a 5-point scale (2 points for each emotion and a neutral rating) after viewing each advertisement. The results were coded as values ranging from -2 to +2. To determine the significance of group proportions, we conducted a test for the quality of two paired proportions (based on the chi-square test) between all groups (by generation). Generally, with the sample size analysed, differences exceeding 10% were considered statistically significant.

We calculated a correlation coefficient between the scores for the effectiveness and controversiality of the ads and the score for the interest in environmental protection issues. Statistical analyses and figures were prepared in R version 4.2.3.

Sadness was the most common emotion, while fear appeared the least frequently

4. Results

4.1. Emotions and Advertising Messages Related to Environmental Issues

4.1.1. Littering

The anti-littering advertising message was associated with the age of respondents across all generations. The older the respondents, the greater the:

- interest (from 55% for Z and Y to 79% for BB),
- sadness (from 47% for Z to 85% for BB),
- fear (from 42% for Z to 71% for BB),
- anger (from 48% for Z to 81% for BB).

The results demonstrated that BB were far more sensitive to the advertising message related to littering than the younger generations, e.g., as many as 38% of BB respondents felt greater sadness than representatives of the youngest generation. Anger and sadness were predominant emotions in the context of this ad, but in a differing order. The former was more frequent in younger respondents and the latter in older generations. Fear was the least common emotion triggered by this ad (Figure 1).

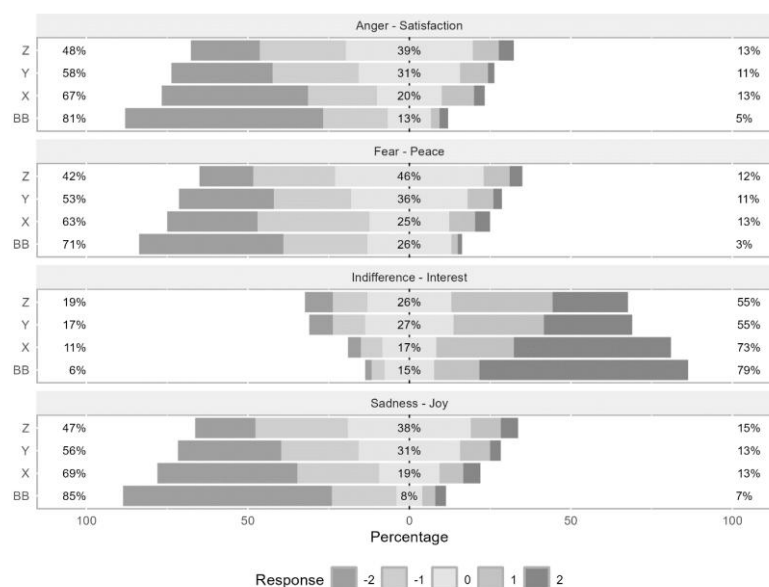


Figure 1: Emotions Based on the Advertising Message Regarding Littering by Generation.
Source: Authors own work.

4.1.2. Water Pollution

Another advertising message pertained to water pollution and, like the previous ad, was also associated with the age of respondents. The negative emotions analysed were more frequently experienced by older individuals, the only exception being fear (BB - 69% vs X - 73%) (Figure 2). The most frequent emotion triggered by this ad across all generations was sadness (65%-89%). In BB, it also evoked anger (in 85% of respondents). The least frequent emotion

was fear (except for Gen Z who experienced fear and anger to a similar extent).

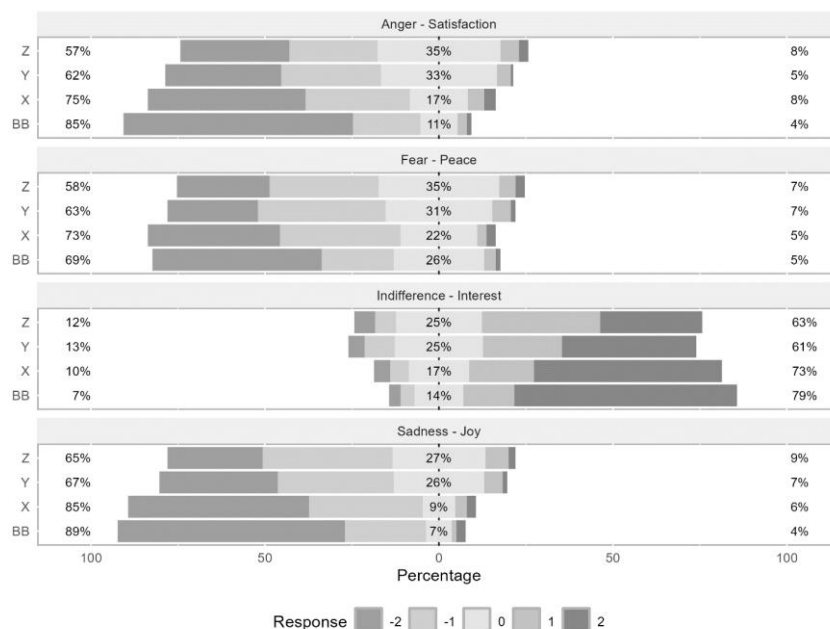


Figure 2: Emotions Based on the Advertising Message Regarding Water Pollution by Generation.
Source: Authors' Own Work.

4.1.3. Air Pollution

In the case of the anti-smog ad, the hierarchy of emotions looked similar to that observed with the anti-littering ad. The number of respondents who were interested in this issue was about 25% higher among BB as compared to the youngest generation and in the case of sadness, the difference was nearly 40%. The number of respondents who experienced anger in reaction to this ad was over 30% higher among BB as compared to Gen Z (Figure 3).

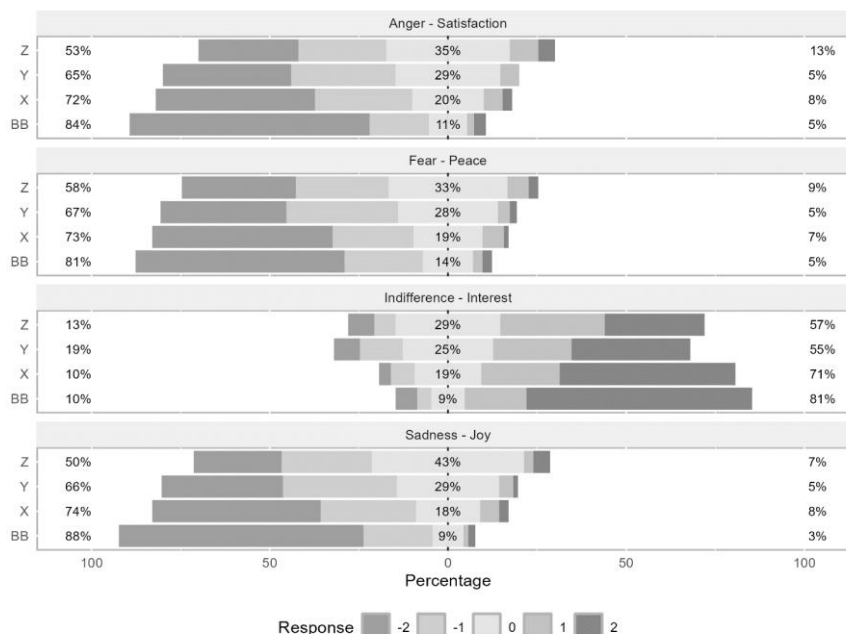


Figure 3: Emotions Based on the Advertising Message Regarding Air Pollution by Generation.
Source: Authors' Own Work.

Individual generations differed in terms of the predominant emotions. Fear was a significant emotion for the youngest generations (58% for Gen Z, 67% for Gen Y). Sadness was predominant in the oldest generations (88% for BB, 74% for Gen X). As for the generations in between, similar proportions of respondents reported fear, sadness and anger.

4.1.4. Water Scarcity

The anti-drought advertising message displayed an association with the age of respondents, with a few exceptions.

Again, the empirical analysis of the material showed that the oldest respondents related to the problem significantly more frequently as compared to the other generations. At least 77% of BB respondents experienced each of the negative emotions at an intense level and showed interest in the message at the level of 81%. The lowest sensitivity to the anti-drought ad was observed among Gen Z and Y (Figure 4). Sadness was invariably the predominant emotion in the case of this ad. The emotion was experienced by 61%-63% of respondents in the younger generations and 81%-87% in the older generations. In Gen Z, another significant emotion was fear.

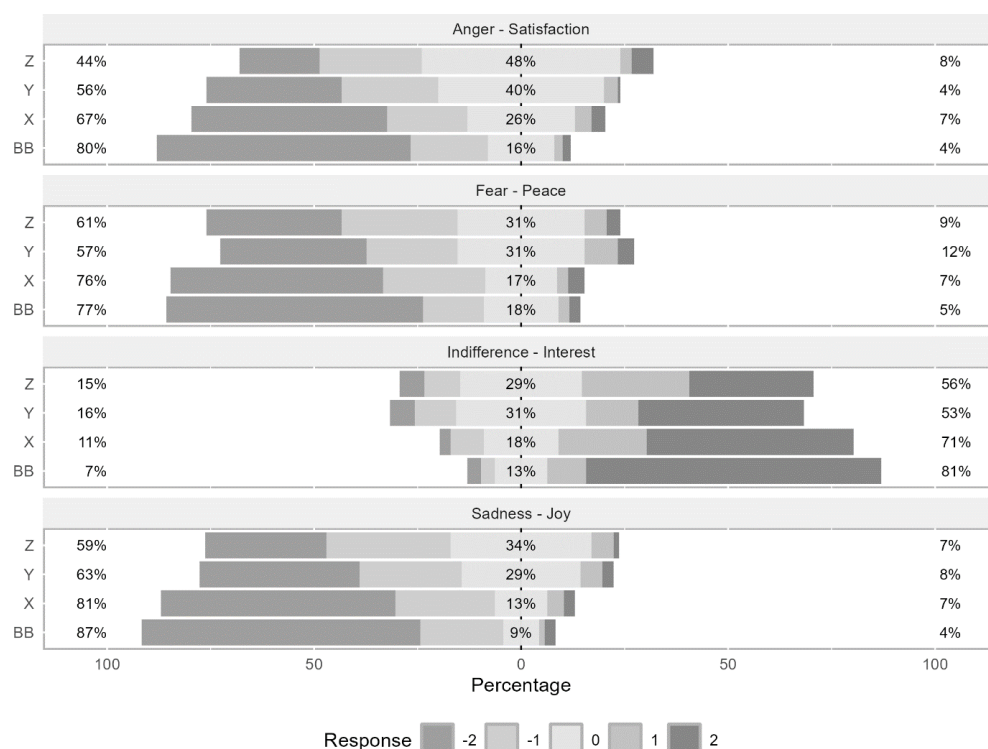


Figure 4: Emotions Based on the Advertising Message Regarding Water Scarcity by Generation.
Source: Authors' Own Work.

The results described above were supplemented by comparisons of individual emotions in relation to different advertising messages. The aim of these analyses was to determine the degree to which individual ads evoked specific emotions.

4.1.5. Anger – Satisfaction

The intensity of anger increased with age for every advertising message analysed (with no exceptions). The greatest differences were observed between Gen Z and BB: 36% for the anti-drought ad, and only slightly smaller differences for the other ads: littering – 33%, smog – 31% and water pollution – 28%. In Gen Z, X and BB, the most intense anger was triggered by the anti-water pollution ad (57%-85%) and in Gen Y, by the anti-smog ad (65%). The least intense anger across all generations, unlike sadness and fear, was triggered by the anti-drought ad (44%-80%). In the case of the two oldest generations, a comparable degree of anger was evoked by the anti-littering ad.

4.1.6. Fear – Peace

With a few exceptions, the intensity of fear almost always increased with age. This relationship was most pronounced for the ads related to littering (42%-71%) and smog (58%-81%). There were certain differences pertaining to the anti-drought and anti-water pollution ads. In the case of the former, Gen Y experienced less intense fear than Gen Z, and in the latter case, the most intense fear was experienced by Gen X. However, these differences were 4% in both cases and did not disturb the general trend. The highest degree of fear was evoked by the anti-drought ad (Gen Z and X) and the anti-smog ad (Gen Y and BB). The lowest intensity of fear across all generations was triggered by the anti-littering ad. In the case of BB, this was additionally the anti-water pollution ad.

4.1.7. Indifference – Interest

All the advertisements caused more interest than indifference. The overall interest expressed by BB was 80%, Gen X – about 70% and the youngest generations – about 60%. A surprisingly high percentage of respondents representing younger generations showed indifference towards littering (17%-19%), smog (13%-19%) and drought (15%-16%). In the oldest generations, BB and X, all the ads evoked a similar level of interest (differences did not exceed 2%). In Gen Y and Z, the issue of water pollution generated a slightly higher level of interest (by 6%-8%) than the other ads.

4.1.8. Sadness – Joy

All the ads evoked more sadness than joy, with the intensity of the former increasing with age, irrespective of the message (from 47%-59% for Z to 85%-89% for BB). The highest level of sadness was triggered by the message related to water pollution, followed by the anti-smog, -drought and, finally, -littering ads.

4.2. Effectiveness and Controversiality of the Advertising Messages

Public awareness advertisements are often a vehicle for strongly emotional and controversial information. The extent of controversy can enhance both the reception and recall of the message conveyed and thus shape environmental awareness. In the present study, we assessed the effectiveness and controversiality of the advertising messages analysed in an intergenerational approach.

4.2.1. Littering

There were no significant differences in the opinions concerning the controversiality of the anti-littering ad between the generations studied. The most frequent comments were as follows: too controversial, brutal, exaggerated, excessive, humorous. However, the quantitative assessment of the controversiality of the message differed significantly between generations – it grew with age up to Gen X (Z 21% – X 46% of respondents considered the ad controversial) (Fig. 5). Interestingly, BB respondents thought the controversiality of this ad to be lower (31%), which is more in line with the assessment given of the youngest generation. As regards the effectiveness of the ads, the scores increased with age. This form of public campaigns was deemed effective by 45% of respondents from Gen Z, 57% from Gen Y and 71% from Gen X and BB each. The qualitative assessment showed that clear message and presentation of the consequences of littering are equally important for all the generations. Elements such as humour and emotional impact are appreciated by younger generations (Y and Z), whereas older generations (BB and X) pay more attention to authenticity and clear, explicit message.

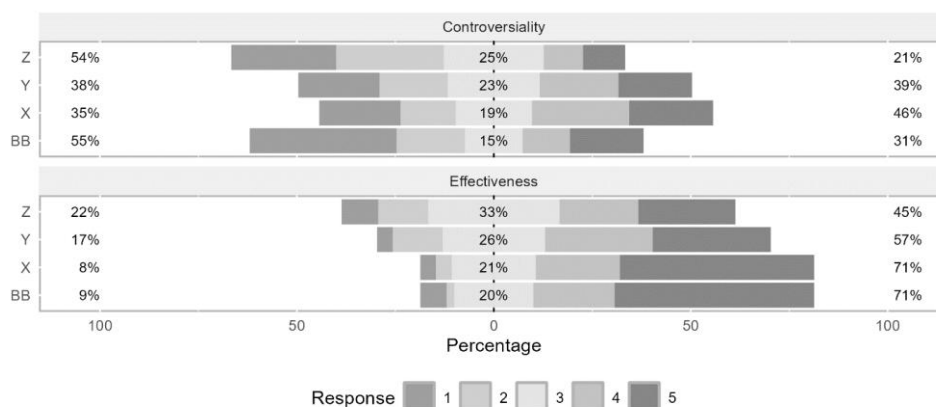


Figure 5: Assessment of the Controversiality and Effectiveness of the Advertising Message Regarding Littering by Generation.
Source: Authors' Own Work.

4.2.2. Water Pollution

Opinions concerning the controversiality of the anti-water pollution message contextually alluded to criminal activities entailing penalisation of this type of behaviour ('provocative', 'refers to crime', 'to the point', 'gripping'). Moreover, the ad caused strong agitation in respondents. On the other hand, many respondents had a surprisingly emotionless approach to this message, downplaying the problem ('offers nothing new', 'quite normal', 'neutral'). Only 25% of Gen Z representatives and 35%-37% of respondents from older generations regarded this advertising message as controversial. The percentage was even lower in the case of the oldest generation (statistically insignificant difference) (Figure 6). As regards the effectiveness of the message, there are almost no intergenerational differences, with 64%-75% of respondents across all generations considering the advertisement effective. The highest value was observed for Gen X, where the percentage of responses denoting a lack of effectiveness was the lowest. The analysis of qualitative assessments revealed that representatives of different generations emphasised the same features determining the effectiveness of this ad: strength of the message, reference to crime, presentation of the consequences and importance of the problem, indication of real situations (surveillance footage).

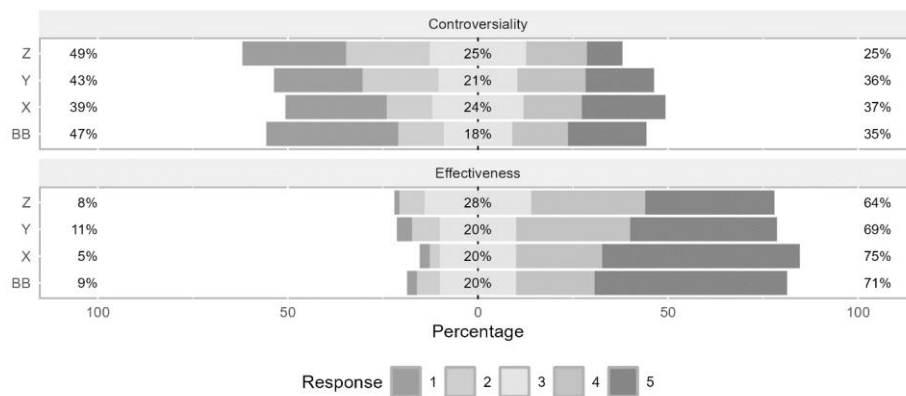


Figure 6: Assessment of the Controversiality and Effectiveness of the Advertising Message Regarding Water Pollution by Generation.
Source: Authors' Own Work.

4.2.3. Air Pollution

Smog has become an increasingly important problem associated with social behaviour and entailing negative consequences for the environment and health. In their opinions, respondents indicated that this advertising message was very real and showed the life of inhabitants of contemporary cities – their economic stratification and, in many cases, ever-present pauperisation. These aspects had a significant effect on how respondents assessed the controversiality of the ad ('problem in many cities', 'there are people who have to live like this', 'this is life', 'fuel is expensive, some people have no choice', 'poverty'). Many respondents also mentioned the motif of murder, literally and metaphorically ('domestic violence and pathology', 'an axe, police must come', 'shocking and hideous', 'shows a real problem'). All the generations expressed strong opinions, which were motivated by the grim context and the life-like authenticity. Thus, this public awareness campaign should also be treated as controversial and evoking extreme emotions. The percentage of respondents who assessed this ad as controversial was similar for Gen Z and BB (41% each). In the case of Gen Y and X, the value is higher by 12% (53%-55%) (Fig. 7). The anti-smog advertisement is controversial to different generations mainly due to its gloomy atmosphere, allusion to murder and the exaggerated presentation of the issue. The assessment of the ad's effectiveness differed between generations. Again, Gen Z rated the ad as least effective. However, the values were comparable among the older generations (67%-73% of respondents considered the message effective).

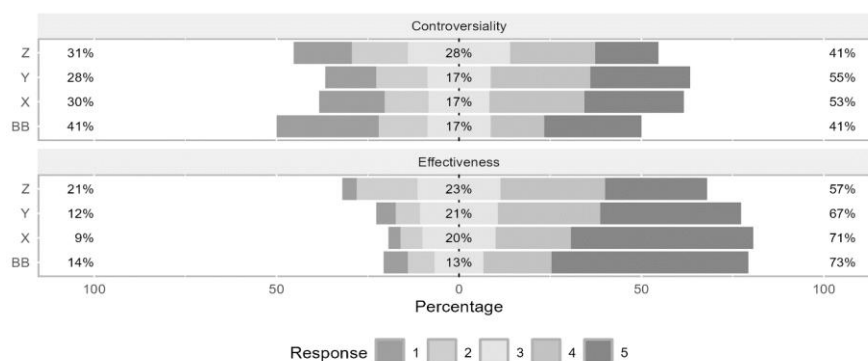


Figure 7: Assessment of the Controversiality and Effectiveness of the Advertising Message Regarding Air Pollution by Generation.
Source: Authors' Own Work.

4.2.4. Water Scarcity

The issue of drought/water scarcity is also a sign of the times and the ongoing climate change. In the qualitative assessment, respondents mentioned that the public awareness campaign underlined the importance of access to water as a key factor, essential for life. The respondents' opinions, irrespective of the generation, indicate that the ad effectively raises awareness of the problem of drought, presenting dramatic consequences of water scarcity which, in turn, provides motivation for taking action to save water. The emotional impact and educational character of the message also contribute to its effectiveness. The effectiveness of the advertisement lies in the combination of dramatic visualisations of the future and a clear message and encouragement to take specific actions. BB particularly valued the educational character and realism of the ad, while younger generations (Y and Z) paid more attention to its emotional impact and the visualisation of the issue. In turn, Gen Z appreciated the swift and direct message and creative approach. Although there were some similarities in how various generations reacted to the controversiality of the ad, the differences in their perception and reactions are

One-third of participants found the ads controversial – especially the one about air pollution (smog)

mainly due to the differences in their approach to the dramatic message and post-apocalyptic themes. The number of respondents who assessed this ad as controversial clearly increased with age, from 18% in Gen Z, 31% in Gen Y, to 45% in Gen X. Again, the percentage of high scores among BB was lower than in Gen X, but similar that in Gen Y (Figure 8). In terms of the ad's effectiveness, just as in the case of controversy, Gen Z clearly stands apart from the other generations. The percentage of respondents claiming that the message is effective is similar in generations Y-BB (75%-78%), with the proportion of high scores increasing with age. For many people, the vision presented in the ad can be terrifying but, at the same time, effective in raising awareness of the problem.

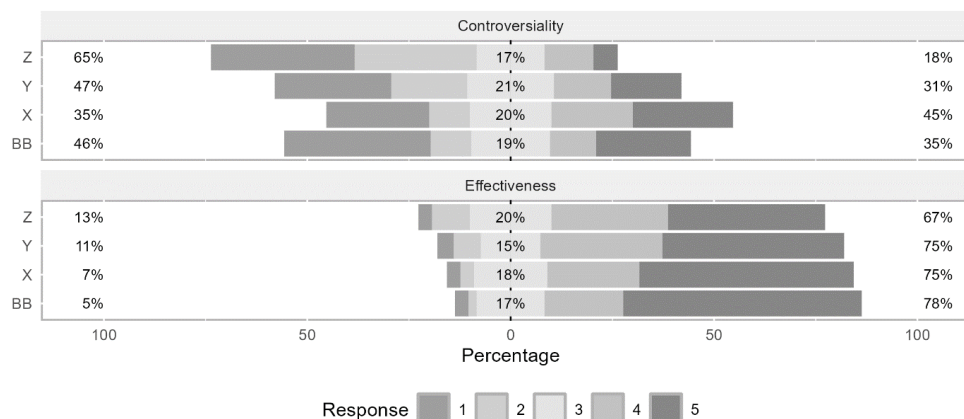


Figure 8: Assessment of the Controversiality and Effectiveness of the Advertising Message Regarding Water Scarcity by Generation.
Source: Authors' Own Work.

4.3. Effectiveness and Controversiality – Conclusions

As for the controversiality of the advertising messages, it was clear that the youngest generation considered the ads least controversial, irrespective of the problem presented. Usually only 18%-25% of Gen Z respondents assessed the ads as controversial. The exception was the anti-smog ad - 41%. These values increased with the age of respondents – Gen Y 31%-67%, Gen X 46%-73%. In turn, the controversiality of the ads was always lower in the opinion of BB as compared to Gen X and comparable to the assessment given by Gen Y (with the exception of the anti-littering ad, where it was lower).

The ad assessed as most controversial was the one related to smog (48%). The message about water pollution was considered least controversial (32%), although the other two ads were close behind (34% each). As regards the effectiveness of the ads, it increased with age almost without exception. From 45%-67% for Gen Z, 57%-75% for Gen Y, to similar values in the older generations (71%-78%). The effectiveness of the ads was assessed in the following ascending order: littering (61% of all respondents), smog (67%), water pollution (70%) and drought (74%). It is worth noting that irrespective of the ad in the older generations (especially BB), the generally high effectiveness scores were accompanied by extreme controversiality scores, i.e., individuals who rated effectiveness as the highest are divided into those who rated controversiality as either the highest or the lowest. This stems from the fact that in view of the older generations, the message does not have to be controversial in order to be effective.

The statistical analysis showed that there was no statistically significant linear correlation between the effectiveness and controversiality scores for individual advertising messages. However, there were significant correlations between controversiality scores (correlation coefficient 0.62-0.68) and slightly weaker correlations between effectiveness scores (correlation coefficient 0.54-0.60). This suggests that the assessment may be more dependent on respondents' sensitivity to environmental issues, rather than a specific ad.

4.4. Interest in environmental issues and effectiveness of advertising messages

Irrespective of the generation, respondents were considerably interested, rather than not interested at all, in issues related to environmental protection. This is most visible in the case of the oldest respondents (BB) and least pronounced among the youngest generation (Z). Importantly, this interest increases with age (Figure 9).

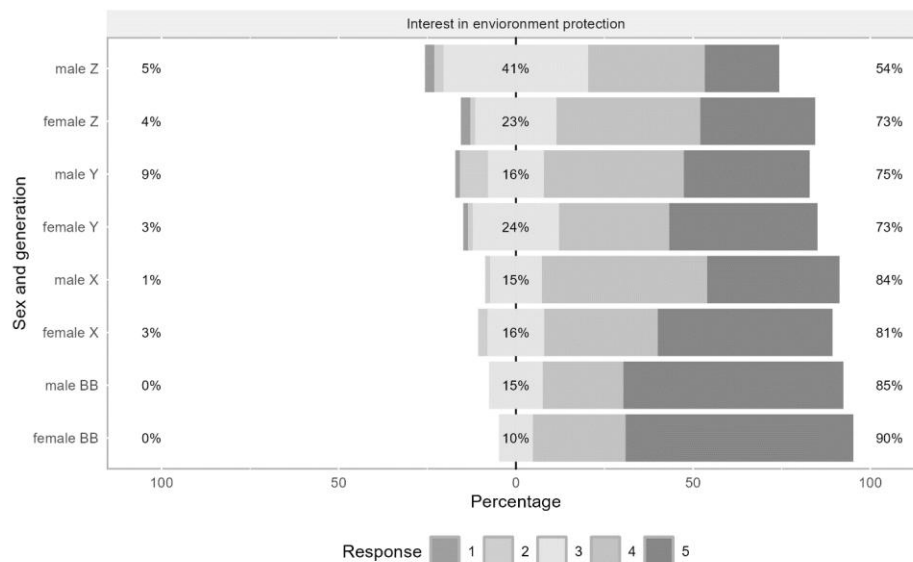


Figure 9: Interest in Environmental Protection Issues by Generation and Gender.
Source: Authors' Own Work.

In the oldest generations, over 80% of respondents expressed great interest in environmental issues. It is worth emphasising that among BB, as many as 63% showed the highest degree of interest and 0% showed an entire lack of interest. In contrast, some Gen Y and Z respondents attached little importance to environmental issues (6% and 5%, respectively). However, there was a clear difference in the proportion of respondents for whom environmental issues were of great significance (Y – 74%, Z – only 63%). Interestingly, the younger the respondents, the higher the percentage of people who showed a moderate interest in environmental issues (from 12% for BB to 32% for Gen Z).

As for gender-related intergenerational differences, the analysis of the empirical material yielded interesting insights. Gen Z females displayed considerably greater interest in environmental protection than males (73% vs 54%, respectively). A similar trend, albeit on a smaller scale, was observed among BB (females – 90%, males – 85%). The opposite was found for gens X and Y, although the differences in interest were small (3% and 2%). The greatest number of responses denoting a lack of interest in these issues was observed among gen Y males (9%) (Fig. 9).

The effectiveness of advertisements grows with respondents' age and interest in environmental protection

We observed a weak (0.28-0.36) positive correlation between the effectiveness scores for each ad and the scores for interest in environmental protection issues. A stronger positive correlation was observed in the case of the anti-smog, -drought and -littering ads. Thus, the effectiveness of the advertising messages depends on numerous factors. Generally, it grows with the age of respondents and their interest in environmental protection issues. However, it is also high among people who declare low interest in environmental protection. This is a significant finding, which offers a wider marketing perspective on the relevance of environmental public awareness campaigns – it is important in the context of the final effects of such campaigns.

5. Discussion and Conclusions

Generations are groups of people born in a specific time period (Rindfleisch, 1994). Consequently, these groups encounter various factors in their lives – social, economic, environmental, cultural – which strongly determine their decisions related to sustainable consumption. These, in turn, contribute to the pursuit of better-quality products and lower production costs, which translates into a lower level of pollution (Ngobo; Devallet-Ezanno, 2010; Sinding, 2000). Generations display personal, cultural and historical differences. Generation BB is a post-war baby boom generation, whose successive cohorts achieved improved living standards and went through a different experience of adulthood (Roberts, 2012). Gen X experienced different stages of history and cultural development (Ikeda et al., 2008). This is a generation that consumes in a sustainable way, cares for the quality of life and financial stability, showing concern for rational economic growth. Gen Y are people who look for innovation. Born amidst technological evolution, they form a significant segment of buyers (Gardiner et al., 2015; Kruger; Saayman, 2015). Members of Gen Z were born and raised in specific circumstances. New technologies are natural for them and their jobs must be attractive (Dolot, 2018). This young generation is characterised by great curiosity. They have easy access to product information and their environmental awareness can be shaped by green advertising (Herman et al., 2021). Studies have shown that

A successful public awareness campaign should consider generational differences and use appropriately tailored emotional messaging

representatives of Gen Z are less engaged in green activities than participants from an older age group and that factors determining their pro-environmental behaviour have a predominantly economic character (**Parzonko et al.**, 2021). Therefore, anyone who operates on the market and cares for the condition of the natural environment should know how representatives of various generations perceive sustainable development because perception, generational awareness and behavioural practice contribute to the mitigation of environmental issues.

Environmental public awareness campaigns can be used as both an educational tool disseminating knowledge among the target audience and an instrument of pressure that environmentally aware institutions can exert on society (**Abroms; Maibach**, 2008; **Olmedo et al.**, 2020). However, the demographic range of the campaign recipients is highly diverse. Very often, these differences determine the ways of creating the content of public awareness campaigns, including those pertaining to environmental protection. This issue is becoming a global challenge (**Reading; Roxburgh**, 2024). Therefore, identification of the factors that differentiate contemporary societies (including age and the associated generation) in relation to their approach to the environment and its protection creates the possibility to take informed action and rationalise marketing messages, devising them based on emotions or controversial content. The study described and analysed in this paper presents this subject in a scientific framework. We verified the formulated hypotheses based on a broad research perspective. However, the results obtained were sometimes cognitively surprising, hence warranting change in the way we think about the approach of different generations towards environmental protection (see **Emina**, 2021).

The results indicated that audio-visual environmental advertising evoked similar emotions, albeit of different intensity, in the representatives of different generations. The predominant emotion evoked by the ads was sadness (except for the anti-smog ad in Gen Z). The second most frequent emotion was anger, triggered by the anti-littering ad. Anger was also experienced by the oldest generation and by Gen X and Y in the context of the anti-water pollution ad and the anti-smog ad, respectively. Fear occurred least often as a predominant emotion – it predominated only in the three youngest generations in the context of the anti-smog ad and in the youngest generation in the case of the anti-drought ad. This emotion was never predominant in the oldest generation. However, it was clear that BB representatives often reacted with sadness to each of the environmental issues presented in the ads. This may be determined by the experiences of respondents and culture in which they were raised. **Myrick and Conlin** (2021) even argue that emotion and culture go hand in hand in the context of environmental communication research. Thus, emotional responses to environmental messages can vary depending on the context, as confirmed by our study.

Many institutions experiment with unconventional and controversial advertising projects because there is a certain level of public acceptance for original, emotional, and shocking marketing messages (**Bachnik; Nowacki**, 2018). Experimenting with controversial elements in advertising aims to evoke strong emotions, attract interest, and sometimes provoke outrage or disgust. The success of this strategy depends on e.g., the cultural factors of the market and public awareness of the issue (**Bachnik; Nowacki**, 2018). Studies have shown that attitudes towards controversial products and their promotion can vary depending on generation (age), gender, or the advertising technique used (**Fam et al.**, 2008). Our study showed that the content of environmental advertising is not likely to be a factor that significantly affects the perception of these messages. The advertising messages analysed were considered to be controversial by one-third of all participants, the exception being the anti-smog campaign, which was regarded as controversial by 50% of respondents. This difference may stem from the script which presented the issue of smog in a way respondents considered to be 'brutal', 'criminal' and ambiguous. Some respondents justified the behaviour presented in the ad, saying that it was caused by a poor financial situation of some people, at the same time acknowledging the dangers caused by low-level emissions and the burning of rubbish. Thus, it transpires that the use of controversial advertising can potentially be offensive to its audience and provoke negative reactions, as confirmed by a study conducted by **Waller** (2006). This may refer to e.g., the mood management theory, which is used to analyse the interactions between mood and controversial advertising messages in a social context. **Noland** (2020) indicates that individuals in a positive mood generally have a more favourable attitude towards non-controversial ads and a less favourable one towards controversial ads. The contrary applies to individuals in a negative mood.

Our findings show that the attitude of respondents towards environmental protection is of moderate importance for the assessment of advertising message effectiveness. The effectiveness of the ads generally increased with the age of respondents, but it was not closely associated with their interest in environmental protection issues. It did not matter whether the declarations of respondents pointed to a high or low interest in these issues. This is an important finding, which will allow for creating environmental public awareness campaigns with a wider perspective in mind. After all, their main aim is to achieve the intended effect of social impact in pursuit of the common good. It should be remembered that human choices vary depending on circumstances, location, time, upheld norms, and social influences, emotional judgments, or cognitive errors. According to the concept of behavioural economics, the greatest impact on the effectiveness of social campaigns is attributed to: appeals to social norms, financial incentives, and appropriate agenda framing. Their practical application by social campaign creators (so-called choice architects) can contribute to more reasonable decisions made by individuals (as perceived by themselves and society) (**Miłaszewicz; Borawska**, 2021) and should consider the generational context.

5.1. Limitations and Future Research

The main limitations of the study are mainly related to the selection of the advertising messages used in the research procedure. Advertisements differ in terms of duration, which may affect the strength of exposure to specific stimuli and their assessment by respondents. Another element worth attention is the order in which environmental advertising messages are displayed to respondents, as this factor may have an effect on the perception of individual ads and their impact on respondents. A limitation of the study is that it did not include the younger segment of Generation Z, as these individuals were underage when the study was conducted, and the older segment of Baby Boomers, given the challenges in reaching older individuals who may be less willing or able to use the Internet. This is supported by data on the population of Internet users in Poland. Among individuals aged 65–74, only 41% use the Internet, while in the 55–64 age group, the rate is 65% (despite the fact that overall, according to Statistics Poland, 93.3% of Polish households had access to the Internet in 2023; this places Poland above the European Union average)

<https://raportstrategiczny.iab.org.pl/dostep-do-internetu-w-polsce/>; CBOS.

Future studies should take account of potential and actual experiences of respondents relating to the natural environment and its protection. Usually, study participants encounter different cases of negative human impact on the environment within long and short time periods relative to the study procedure implementation. This may also affect their assessment when answering questions included in the research instrument. However, it needs to be remembered that the problem of negative human impact on the environment is so common that respondents will have encountered each of the environmental issues presented in the ads more than once during their lives – irrespective of the generation they belong to.

Future studies could consider the above-listed limitations and more precisely address the essence and importance of environmental public awareness campaigns. For instance, they could indicate specific elements of individual advertising messages that have the strongest effect on the audience. It is worth repeating such studies in the context of e.g., negative human-caused environmental events vs periods of relative absence of such events in the media and public space. Furthermore, the study material suggests what aspects to focus on in subsequent in-depth analyses, namely intergenerational discrepancies, which may prove to be relevant in the context of creating environmental public awareness campaigns.

An additional aspect worth addressing in future studies is the verification of actual green behaviours of respondents in light of their declarations expressed in the research tool. It would also be useful to conduct analyses of emotions evoked by TV advertising messages or online public awareness campaigns, including e.g., analyses of salivary stress hormone levels (cortisol, DHEA, testosterone) (see **Godlewski et al.**, 2023) or E-motiv measurements (analysis of brain wave activity using simplified EEG). Another aspect worth exploring would be studies on international samples. Their result may provide an interesting reference point for the analyses and conclusions of the present study.

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