

Environmental Impact Assessment of Sustainable Food Practices: Insights from the Generation Z cohort.

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Abstract. Sustainable future depends upon the perceptions that people have of what consumption patterns may benefit the environment, and their forthcoming behavior. Under this context, this paper presents the results of research focusing on the perceptions that the Generation Z cohort (N=252) holds regarding the environmental benefits from specific consumption patterns. Factor and cluster analysis provided with segments based on these perceptions of environmental impact assessment of sustainable food practices. The groups formed reveal the segments that marketing communication should target for long run results of sustainable food consumption.

Keywords: Sustainable food consumption; Environmental benefits; Environmental Impact Assessment; Perceptions; Marketing Communication; Digital Marketing.

1 Introduction

One cause of environmental degradation is human's food consumption patterns; therefore, a sustainable future depends upon the individual's environmentally friendly practices. Amongst the environmentally friendly practices is adopting food consumption patterns that will benefit or at least will not hurt the environment. Sustainable food consumption (SFC) behavior is a crucial issue of sustainable consumption and consists of great interest due to its multiple impacts (Reisch et al., 2013), and is considered as a result of sustainable food choices and sustainable food diets (UK Parliament, 2011). Since perceptions lead to behavior (Anant, 2010), government leaders must understand the perceptions that people hold regarding the environmental impact of different food consumption patterns. It is even more significant to understand the perceptions that the youngest adult generational cohort

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holds since they are the future parents and leaders of future societies (Kamenidou et al., 2019). The Generation Z cohort consists of individuals born between 1995-2009 (Williams and Page, 2011). Therefore, this paper examines the Greek Generation Z cohorts' perceptions regarding the environmental benefits from SFC patterns.

2 Literature review

Studies referring to consumer's sustainable food behaviour include reduction of meat consumption (Vainio et al., 2016), and consumption of local or organic food products (Scalvedi & Saba, 2018). Similarly, some point out the households' waste behavior (Bettina, 2018), attitudes, intentions, involvement, perceptions, and motives for engaging in an SFC behavior (e.g., Wang et al., 2014), or barriers to adopting this behavior (Luthra et al., 2016).

Also, consumer characteristics and their effect on SFC (Vanhonacker et al. 2013) and segmentation analysis based on SFC (Vanhonacker et al., 2013) have been studied. Regarding perceptions of environmental benefits originating from SFC, a large number of papers focus on environmental benefits from organic food consumption (Mondelaers et al., 2009; Magnusson et al., 2003). Others focus on the environmental friendliness of food products (Tobler et al., 2011), and meat or dairy consumption reduction as well as avoiding consuming food products that are imported or the production area is of large distance proximity from the consumption perspective (Jungbluth, et al., 2000). These abovementioned researches are only some of the issues that are investigated by academics regarding SFC and its environmental impact.

Lastly, as regards research on the Generation Z cohort and SFC, a handful of studies have been found. Kamenidou et al. (2019) studied the SFC behavior of the Generation Z cohort university students in Greece and found that they do not engage in SFC behavior. Zalega (2019) studies the attitudes and motives of SFC, and especially Fair-Trade certified products in Poland, regarding Generation Z and Y consumers. It is pointed out that Generation Y consumers are individuals born between 1987-1994 (Sheahan, 2005). The author found that the subjective perception of participants' sustainable consumption is highly differentiated and strongly correlated to sociodemographic and economic factors (gender, education, place of residence, and perceived financial situation). The findings also revealed that women are more prone to SFC behavior than men. The same results seem to appear for university graduates, those earning more than 707 euros per month and living in large urban agglomerations. Mitchell and Topic (2019) investigated the environmental packaging behaviour of the Generation Z cohort and found that environmental consumerism is turning out to be a social norm of younger generations.

3 Methodology

The quantitative research questionnaire was adopted from an extensive literature review and a qualitative follow-up research in order to verify the items for the research

in Greece. Specifically, six consumption pattern items for environmental benefit were adopted from Tobler et al. (2011), six from Vanhonacker et al. (2013), and three from qualitative research. The scale used to measure perceptions of participants was also adopted (with modification) from Tobler et al. (2011). Lastly, socioeconomic and demographic questions were also included. The final scale was assessed as a 7-point Likert type scale, ranging from 1= no / very little environmental benefit up to 7= huge / very large environmental benefit.

The questionnaire was forwarded via the internet employing a non-probability sampling method, following Kamenidou et al. (2019) procedure, concluding to a sample of 252 Generation Z university students. The SPSS ver.24 was used, and analysis included descriptive statistics, factor, and cluster analysis.

4 Results-Discussion

4.1 Sample profile

The majority of the sample were females (54.8%), with three age groups being most prominently represented (19, 20, and 22 years old reflecting 23.8%, 21.4%, and 22.6% respectively). As concerns income, family net monthly income in euros was requested since parents usually support financially their children as university students. The largest body of participants fell into the 1000.01–2000.00€ range.

4.2 Factor analysis - Segmentation based on perceived environmental benefits from SFC practices.

Exploratory Factor Analysis with varimax rotation was performed on the items, revealing the perceived environmental benefits from SFC pattern. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (Cerny & Kaiser, 1977; Kaiser, 1974) and Bartlett's Test of Sphericity- BTS (Bartlett, 1954) were calculated to measure sample adequacy. Regarding KMO, Tabachnick and Fidell (1996) indicate that the higher the BTS, the better the factor analysis. They also consider a minimum value of 0.6. Likewise, Pallant (2001, p. 153) stresses that in order for factor analysis to be judged as appropriate, BTS has to be significant, i.e., $p < 0.05$. The analysis extracted three factors (KMO=0.897; BTS=1800,968; $df=105$; $p=0.000$), accounting for 60.8% of Total Variance (TV). The first factor is named "Sustainable food consumption" and explains 21.9% of TV and consists of seven items that are directly associated with consuming sustainable food products. The second factor is named "Refraining consumption patterns", which explains 21.6% of TV and comprises of five items. These five items are consumption patterns to be avoided for sustainable food consumption behavior. Lastly, the third factor is named "Protein substitutes," it explains 17.3% of TV and consists of three items, referring to different ways for substituting meat protein intake. The Mean Factor Score (MFS) of the abovementioned

constructs were used as new variables in segmentation analysis, via K-Means Cluster analysis (Table 1).

Table 1. Generation Z segmentation of perceived environmental benefits of SFC practices

VARIABLES		CL1 N=58	CL2 N=74	CL3 N=120	F	Sig.
Sustainable food consumption		3.42	6.20	5.36	157.978	.000
Refraining consumption patterns		3.02	5.75	4.99	120.904	.000
Protein substitutes		2.70	6.93	4.10	312.215	.000

Source: The authors N=252

Segment No.1: “Disbelievers -SFC avoiders”. These Gen Zers do not believe that any SFC pattern presented have environmental benefits, since all final cluster centers (FCC) are <3.5 , and for so, there is a low probability that in the future they will adopt an SFC pattern behavior.

Segment No. 2: “Believers- potential SFC consumers.” These Gen Zers do believe that the environment will benefit when practicing an SFC behavior, especially if there will be a meat protein substitute. In all cases, this segment has $FCC > 5.5$, implying that there is an environmental gain from SFC. This segment is the most probable to engage in SFC pattern.

Segment No. 3: “Sceptics- maybe SFC consumers.” These Gen Zers seem to be skeptical about the environmental impact assessment of sustainable food practices, since, in all cases, $4.00 < FCC < 5.5$. If this group is convinced about the benefits and positive environmental impacts due to an SFC behavior, it is very likely in the future to engage in an SFC behavior.

5 Conclusions

This research had as its aim to investigate Generation Z consumers’ perceptions of the environmental impact assessment of sustainable food practices, which was realized with a sample from Greek Generation Z university students. Segmentation analysis provided with three groups of Gen Zers’ perceptions, the “Disbelievers -SFC avoiders,” the “Believers- potential SFC consumers,” and the “Sceptics- maybe SFC consumers.” From these three groups, the second and the third have the potential to be in the future people engaging in an SFC behavior. As Mäkineniemi & Vainio, (2014) assert, the consumer should believe that SFC behavior is beneficial for the environment. It is here that communication marketing must be practiced producing an awareness of the beneficial outcomes for the environment when practicing an SFC behavior. In this course, digital marketing should be applied, since this generation is technology experts, have been born in technology and for so are also called “Digital Natives” (Mohr and Mohr, 2017; Williams, 2015). Specifically, social media such as Facebook, which is widely used in Greece by the Gen Z cohort, is considered very

suitable to employ in a marketing communication campaign arising awareness of SFC benefits.

6 Limitations and Directions for future research

This research has some unavoidable limitations. First of all, it focuses on only one generational cohort, so larger research based on all cohorts would be of interest and would provide a more in-depth understanding of SFC behavior of a country. Second, comes the fact that a relatively small sample was collected. A larger sample would validate the results of this paper. Lastly, there are probably more items that could have been incorporated in the questionnaire; though, these were the ones that were validated with qualitative research too. Additional items would be of interest and would provide a holistic understanding of the perceived environmental benefits of practicing sustainable food consumption behavior.

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