Article

The Effects of Temporal Discounting on Perceived Seriousness of Environmental Behavior: Exploring the Moderator Role of Consumer Attitudes Regarding Green Purchasing

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Abstract: Emerging issues related to climate change have been explored in recent years as the need for appropriate behavioral solutions grows. However, one of the main problems raised and yet to be solved is the challenge to encourage people to act against climate change. One of the identified barriers is the mental indirect link between the influence of human activities in the present and their future consequences. This psychological distance could be investigated by examining temporal discounting—the overvaluation of benefits in the present compared to benefits in the future—and its relationship to environmental behavior on consumers' attitudes toward green purchasing. In this research, we conducted a survey (n = 337) to examine the relationship between temporal discounting and perceived seriousness of environmental behavior and investigated the moderating effect of consumers' attitudes regarding green purchasing. The results show a moderating effect of these consumers' attitudes on the relationship between temporal discounting and perceived seriousness of environmental behavior. These findings make important contributions to environmental policies by rethinking and adapting new solutions that promote behavioral change, namely by exploring psychological variables and identifying green consumption profiles.

Keywords: temporal discounting; behavior; environmental perception; green consumption attitudes

1. Introduction

Why is it so hard to get people to act on climate change? This is one of the biggest questions of our time, and it is indeed a complex one, with no single answer. This inoperativeness is generated by a combination of different factors that affect people's motivations. For example, a study of the EC found that consumers were generally positive towards circular economy, but their actual engagement was rather low and sensitive to factors such as simply getting a better deal [1]. Regarding green consumption, although consumers express positive attitudes towards it, their actual behavior is not aligned with these attitudes [2,3]. Given its importance, green consumption has been studied extensively across different disciplines, which allowed the identification of a set of antecedents, namely individual characteristics such as dispositions towards environmentally friendly behaviors [4–6], connection to their personal identity [7], or consumers' perceptions of aspects of sustainable consumption such as its attributes [8], as well as social factors, such as social norms [9] and gains in social status [10].

Behavioral economics, as an area of research that tests the classic rational assumption by identifying consistent behavioral patterns, has continuously shown how humans systematically violate these classical assumptions [11–14]. According to behavioral economics models, one of the psychological factors that contributes decisively to this lack of motivation to change our behavior in many situations is related to the concept of temporal discounting [15,16]. How we evaluate the future and how we make choices about things

that we can receive now or at some later point in the future is a fascinating problem: our preferences about things across time change as a function of time progression [15,16]. Knowing that we are facing a complex and multivariate problem, we believe that this study presents results that will allow us to draw up a consumer profile, perceiving and analyzing specific characteristics, which make them more sensitive to environmental issues.

Literature Review

People tend to focus on today rather than tomorrow, and this mindset also affects their perception in understanding or internalizing future events, even the ones that are detrimental for society. Temporal discounting can generally be defined as a tendency of people to prefer immediate desire instead of waiting for the future outcomes, even though the immediate reward or gratifications would still outweigh the delayed gains or gratifications [17], as extensively shown, for example, in the studies addressing daily routines or behavior [18]. Some authors (e.g., [18]) explain this effect in terms of tangibility of benefits versus costs: in other words, resisting a temptation "now" (e.g., eating a chocolate cake versus dieting) involves tangible short-term costs that prevent us from achieving future goals. For instance, people are often able to describe the future risks of climate change, however they are unable to act in order to minimize the potential risks. In fact, ignoring the impact of climate change in the short term can produce inertia, leading to an inability to change our behavior, e.g., the cars we drive, the homes we live in, or the products we buy. Since the behavior and environmental impact is not visible/immediate, this inertia becomes even stronger, making it even harder to establish long-term goals. In fact, people tend to be much better with obvious threats than they are with the ones that escalate quickly and nonlinearly [19]. This indirect interconnection between the influence of human activity and environmental issues will certainly have dire consequences, which some experts have already projected.

Nevertheless, the continuous talks, panels, and exposure from the media on environmental problems such as air pollution, water pollution, and climate change, have captured people's awareness about how serious the environmental problems are, although not everyone is at the same level to understand the degree of seriousness and take action. Perceived seriousness of environmental problems is a personal belief that people hold onto, which has been happening over decades. In other words, it is referring to the personal perception regarding the degree of environmental hazard that can be at a global or local level [20]. People tend to be more affected by their perceived seriousness of environmental problems rather than the real-life magnitude of these problems [21]. It is therefore essential to understand how this perception affects or may affect behavior, namely with regard to their purchasing patterns.

From an environmental perspective, green consumption behavior could help minimize environmental degradation, which is why improving the consumption of green products is crucially important. Creating and improving the shared understanding of environmental responsibility could lead people to take more initiative and it could be the first step of creating a green lifestyle [22]. Green purchase intentions are the customer's intention, willingness, or plan to purchase a product which is environmentally better in comparison with other standard goods in terms of being environmentally friendly, recyclable, etc. [23]. Over time, consumers worldwide have started to become more and more environmentally friendly, not only in the sense of helping or being a part of the movement to improve the environment, but also in the sense of instant anticipated positive outcomes of such products [24]. Green purchase intentions have become a significant milestone on the way to understanding green consumption among several cultures and various economies due to the proximity of intentions to the actual behavioral outcome [25]. Although multiple findings showed a positive relation between the level of perceived seriousness of environmental problems and green purchasing decisions of customers [20,21,26], this relation is not constant nor invariable, being also affected by multiple factors, namely psychological ones (e.g., green attitudes).

Green attitude refers to a consumer's certain level of agreement or disagreement, positive or negative thoughts, feelings, states of mind, and interests regarding the likelihood of performing green purchasing [23,25]. Green attitude is considered as a strong determinant of pro-environmental behavior, alongside the theory of planned behavior (TPB) [23,27], in such ways that the attitude is taken into consideration as the strongest predictor of explaining the green purchase intention of consumers [26,28]. Especially in the field of explaining the determinants of green consumer behavior, consumers' attitudes were found to be, by far, one of the most significant and relevant concepts across different cultures [29]. However, recent studies exploring and extending the TPB [30] have shown that attitudes are not direct antecedents of behavior, which has been verified in multiple behaviors (e.g., exercising and reducing energy consumption [31]).

As previous research showed, green attitudes and perceived seriousness of environmental problems are intimately linked to green purchase intentions and attitudes [20,21,26,28]; however, as mentioned before, temporal discounting could affect decision-making across time, which would determine many behaviors in life [32], including engaging in pro-environmental behavior or green consumption behavior. Thus, even though the perceived seriousness of environmental problems concept is providing a useful ground to understand green purchase intention, it cannot explain why people fail to act when they have a comprehensive understanding of how serious environmental problems are [33]. At this point, including an extra element from a behavioral economics perspective could help us to understand green purchase intention in a broader perspective. In this study, we add an important psychological variable to the model analysis as we hypothesize that temporal discounting is related to future green purchasing intentions via perceived seriousness of environmental behavior (Figure 1). We will run the model testing if those individuals who have less temporal discounting, i.e., those individuals who can wait for a delayed gratification (independent variable) and simultaneously have positive attitudes towards green purchasing (moderator), are also those who perceive environmental threats as a serious problem (mediator), and, consequently, are also those with the intentions to behave more environmentally friendly, by purchasing green products more often (dependent variable). However, we also predict that this link would not be replicated for everyone. We assumed that this would be true only for those who have a positive attitude towards green purchasing.
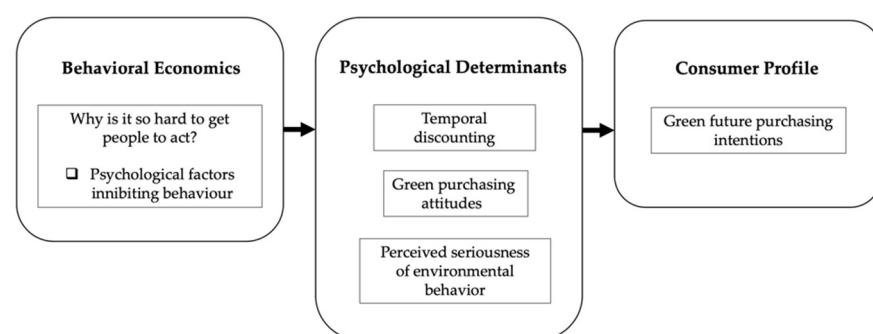

Figure 1. Conceptual model of psychological determinants applied to green purchase intentions: a behavioral economics approach.

2. Materials and Methods

2.1. Participants and Procedure

The questionnaire was distributed through online channels such as social media platforms and messaging services, and 337 participants were recruited via convenience sampling. The average age of the participants was 28.65 years (SD = 9.52) and 61% were females. Prior to data collection, participants read the consent form, with a brief description of the main goal of the survey and the relevance of the topic.

2.2. Measurements

A brief demographic survey was developed for the study, which collected data on age, gender, nationality, and education level. Participants were on average 28.65 years of age (SD = 9.52), 60.8% were females, the highest percentage of participants were nationals from Turkey (43%) and Portugal (16%), and the remaining 41% were from 37 other nationalities, however represented with percentages lower than 5%. The sample was distributed by education level as follows: 25% were high school graduates or less (1%), 46% finished their undergraduate degree, and about 28% had an advanced degree.

Participants were also informed about confidentiality and anonymity rules, as well as they were free to discontinue their participation at any time without penalty.

2.2.1. Temporal Discounting

Temporal discounting was measured using Monetary Choice Questionnaires (MCQ; [34,35]). This questionnaire is a self-reported measure which has 27 items. For each of the 27 choices, the participant indicates between two different rewards which one he/she prefers: the smaller reward today, or a larger reward in the future. This measure assesses whether participants prefer smaller immediate rewards/gratifications over delayed larger rewards/gratifications. Each item had a smaller instant reward and large magnitudes for nine different k values. (e.g., small: $34 now vs. $35 in 186 days, medium: $54 now vs. $55 in 117 days, and large: $78 now vs. $80 in 162 days, where all three items correspond to k = 0.000158128). The Monetary Choice Questionnaire is a valid and reliable measure of temporal discounting—having high construct validity along with strong test–retest reliability [35–37]. Higher values indicate smaller but immediate rewards, whereas lower values indicate larger but delayed rewards (M = −1.93, SD = 0.82).

2.2.2. Green Purchase Attitudes

Attitudes towards green purchase behavior were measured using two items ("I like the idea of purchasing environmentally friendly products", and "I have a favorable attitude towards purchasing a green version of a product"), which were strongly correlated (r = 0.77, $p < 0.001$, M = 5.76, SD = 1.18).

2.2.3. Perceived Seriousness of Environmental Problems

Perceived seriousness of environmental problems was examined based on a previously validated instrument [6]. The instrument consists of 6 items (e.g., "I think environmental problems are very serious", and "Environmental problems need to be dealt with urgently"), and each item was scored on a seven-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). The measure had a good reliability index ($\langle$ = 0.77, M = 6.18, SD = 0.83).

2.2.4. Green Purchase Intention

To measure the future intention of buying green products, green purchase intention was assessed using 3 items adopted from [12] ("Over the next one month, I will consider buying products because they are less polluting", "Over the next one month, I will consider switching to other brands for ecological reasons", and "Over the next one month, I plan to switch to a green version of a product"), with each item scored from 1 (strongly disagree) to 7 (strongly agree), with an excellent reliability index ($\langle$ = 0.91, M = 4.45, SD = 1.40).

2.3. Data Preparation

For temporal discounting, the geometric mean of MCQ-27 discount values was calculated by using the automated scoring system [38]. Then, the k discount value for each participant was calculated. Since the geometric mean of k values was positively skewed because of its nature, a log transformation of skewed k values was conducted to reach a normal (Gaussian) distribution.

3. Results

Table 1 shows the intercorrelations for all the variables.

Table 1. Intercorrelations between temporal discounting, green purchasing attitudes, perceived seriousness of environmental behavior, and green purchase intention (N = 337).

Variables	1.	2.	3.
1. Temporal discounting	—		
2. Green purchase attitudes	−0.09	—	
3. Perceived seriousness of environmental behavior	−0.12 *	0.43 ***	—
4. Green purchase intention	−0.003	0.63 ***	0.31 ***

Note: * $p < 0.05$; *** $p < 0.001$.

We tested the prediction that temporal discounting is related to future green purchasing intentions via perceived seriousness of environmental behavior. Additionally, we also predicted that this link would not be replicated for everyone. We assumed that this would be true only for those who have a positive attitude towards green purchasing. Therefore, to test this prediction, we conducted a moderated-mediation model (Model 7, [39]). This model tested if those individuals who can wait for a delayed gratification (temporal discounting as the independent variable) and simultaneously have positive attitudes towards green purchasing (moderator) are also those who perceive environmental threats as a serious problem (mediator) and, consequently, are also those with the intentions to behave more environmentally friendly, by purchasing green products more often (dependent variable). We conducted this moderated-mediation model controlling for the independent effect of age. The index of moderated-mediation was statistically significant (Index = −0.05, Boot SE = 0.03, Boot 95% CI (−0.11; −0.001)). Results showed that the direct link between temporal discounting and perceived seriousness of environmental problems was marginal ($b = -0.09$, SE = 0.05, $t(336) = -1.73$, $p = 0.085$, 95% CI (−0.18; 0.02)), the direct link between positive attitudes towards green purchasing and perceived seriousness of environmental problems was statistically significant ($b = 0.30$, SE = 0.03, $t(336) = 8.75$, $p < 0.001$, 95% CI (0.24; 0.37)), and both were qualified by a two-way interaction between temporal discounting and positive attitudes towards green purchasing on perceived seriousness of environmental problems, which was statistically significant ($b = -0.11$, SE = 0.04, $t(336) = -2.54$, $p = 0.012$, 95% CI (−0.19; −0.02), $R^2 = 0.21$, R^2 change = 0.02, $p = 0.012$). For participants with higher positive attitudes towards green purchase, temporal discounting predicted perceiving environmental problems as more serious ($b = -0.21$, SE = 0.07, $t(336) = -3.02$, $p = 0.003$, 95% CI (−0.35; −0.07)). For participants with lower positive attitudes towards green purchasing, the link between temporal discounting and perceiving environmental problems as serious issues was not statistically significant ($b = 0.04$, SE = 0.07, $t(336) < 1$, $p = 0.579$, 95% CI (−0.10; 0.18)). Additionally, perceiving environmental problems as a serious issue positively predicted future green purchase intentions ($b = 0.51$, SE = 0.09, $t(336) = 5.81$, $p < 0.001$, 95% CI (0.34; 0.68)). In sum, it is possible to see that temporal discounting predicted future green purchase intentions via perceived seriousness for participants who had high positive attitudes towards green purchasing (Effect = −0.11, Boot SE = 0.04, Boot 95% CI (−0.18; −0.04)). However, the same indirect pathway was not statistically significant for participants with low positive attitudes towards green purchases (Effect = 0.02, Boot SE = 0.05, Boot 95% CI (−0.07; 0.13), see Figure 2).
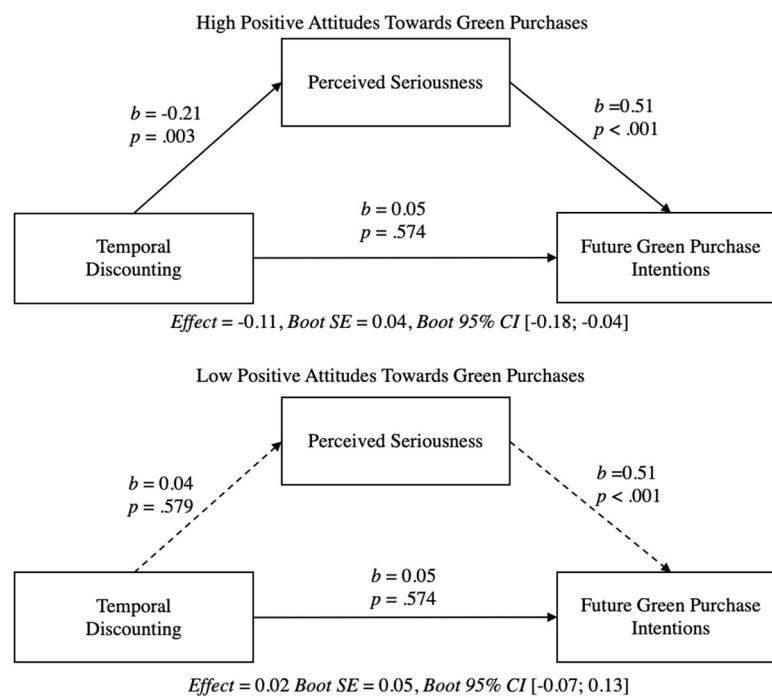
Figure 2. Moderated-mediation model, where temporal discounting predicts future green purchase intentions via perceived seriousness of environmental problems for people with high positive attitudes towards green purchases but not for people with low positive attitudes towards green purchases.

4. Discussion and Conclusions

Our research explored the relationship between temporal discounting and perceived seriousness of environmental behavior, while investigating the moderating effect of consumers' attitudes regarding green purchasing. We directly tested a moderation-mediation model exploring if individuals who can wait for delayed gratification and simultaneously have positive attitudes towards green purchasing are also those who perceive environmental threats as a serious problem, and, consequently, are also those with the intentions to behave more environmentally friendly, by purchasing green products more often. As expected, we found a significant relation between delayed gratifications and predicted future green purchase intentions via perceived seriousness of environmental problems, but also came across the fact that this effect emerged only for participants with high positive attitudes towards green purchasing. In fact, the described relation was not significant for participants with low positive attitudes towards green purchasing.

These data show that, as predicted by the research team, and in line with the behavioral economics theorical framework [15,16], the psychological dimension related to time discounting seems to be an important variable to investigate both perceptions of environmental problems and sustainable consumption patterns (namely consumption of green products). However, it was also shown that this effect only emerged for subjects who already have positive attitudes towards buying green products. The existence of these two distinct profiles seems significantly relevant to be taken into account both in the scope of public policies, as well as in any promotional campaigns, as it reflects the existing diversity in consumption patterns and, thus, stresses the need for awareness and informational interventions regarding a broader support and knowledge about the topic from the general public, as well as an effective action targeting those who still have a less positive attitude towards buying green products.

Sustaining the relevance and importance of all data presented in this paper, we cannot, nevertheless, fail to note some of its limitations, recognizing the practical value of further research considering factors such as the impact of price perception in attitudes towards

green products, as well as other important variables such as, i.e., social norms [9] or social status [10]. Additionally, it is also important to note that one of the possible limitations of this study may be related to the fact that only two items were used to measure the green purchase attitudes construct. Therefore, it is desirable that future research can replicate the results using robust measures.

This study aimed to advance research that may provide important contributions to an emerging area by trying to understand some of the constraints to adopting behaviors that help mitigate current serious issues in our common life, such as climate change and sustainability. To that end, we tried to explore the relationship between psycho-psychological distance through the concept of temporal distance and environmental behavior. It is our understanding that the findings we are presenting make an important contribution to environmental policies by rethinking and adapting new solutions to promote behavioral change, namely by exploring psychological variables and identifying green consumption profiles. Thus, we believe that this study, as well as future research, will highlight the need for effective behavioral change interventions, namely by manipulating the salience of the long-term effects of consumption behaviors.

References

1. LE Europe; VVA Europe; Ipsos; ConPolicy; Trinomics. *Behavioral Study on Consumers' Engagement in the Circular Economy*; Final Report; European Commission: Brussels, Belgium, 2018.
2. Prothero, A.; Dobscha, S.; Freund, J.; Kilbourne, W.E.; Luchs, M.G.; Ozanne, L.K.; Thogersen, J. Sustainable consumption: Opportunities for consumer research and public policy. *J. Public Policy Mark.* **2011**, *30*, 31–38. [CrossRef]
3. Rosenzweig, C.; Karoly, D.; Vicarelli, M.; Neofotis, P.; Wu, Q.; Casassa, G.; Menzel, A.; Root, T.L.; Estrella, N.; Seguin, B.; et al. Attributing physical and biological impacts to anthropogenic climate change. *Nature* **2008**, *453*, 353–357. [CrossRef] [PubMed]
4. Barbarossa, C.; De PelsMacker, P. Positive and Negative Antecedents of Purchasing Eco-friendly Products: A Comparison between Green and Non-green Consumers. *J. Bus. Ethics* **2016**, *134*, 229–247. [CrossRef]
5. Confente, I.; Scarpi, D.; Russo, I. Marketing a new generation of bio-plastics products for a circular economy: The role of green self-identity, self-congruity, and perceived value. *J. Bus. Res.* **2020**, *112*, 431–439. [CrossRef]
6. Mannetti, L.; Pierro, A.; Livi, S. Recycling: Planned and self-expressive behaviour. *J. Environ. Psychol.* **2004**, *24*, 227–236. [CrossRef]
7. Trudel, R.; Argo, J.J.; Meng, M.D. The Recycled Self: Consumers' Disposal Decisions of Identity-Linked Products. *J. Consum. Res.* **2016**, *43*, 246–264. [CrossRef]
8. Luchs, M.G.; Naylor, R.W.; Irwin, J.R.; Raghunathan, R. The Sustainability Liability: Potential Negative Effects of Ethicality on Product Preference. *J. Mark.* **2010**, *74*, 18–31. [CrossRef]
9. Goldstein, N.J.; Cialdini, R.B.; Griskevicius, V. A Room with a Viewpoint: Using Social Norms to Motivate Environmental Conservation in Hotels. *J. Consum. Res.* **2008**, *35*, 472–482. [CrossRef]
10. Griskevicius, V.; Tybur, J.M.; Bergh, B.V.D. Going green to be seen: Status, reputation, and conspicuous conservation. *J. Pers. Soc. Psychol.* **2010**, *98*, 392–404. [CrossRef]
11. Thaler, R.; Sunstein, C. *Nudge: The Gentle Power of Choice Architecture*; Yale University Press: New Haven, CN, USA, 2008.
12. Thaler, R.H. Behavioral Economics: Past, Present, and Future. *Am. Econ. Rev.* **2016**, *106*, 1577–1600. [CrossRef]
13. Thaler, R.H. From Cashews to Nudges: The Evolution of Behavioral Economics. *Am. Econ. Rev.* **2018**, *108*, 1265–1287. [CrossRef]
14. Tversky, A.; Kahneman, D. Judgment under Uncertainty: Heuristics and Biases. *Science* **1974**, *185*, 1124–1131. [CrossRef]
15. Daly, M.; Wilson, M. Carpe Diem: Adaptation and Devaluing the Future. *Q. Rev. Biol.* **2005**, *80*, 55–60. [CrossRef]
16. Critchfield, T.; Kollins, S. Temporal discounting: Basic research and the analysis of socially important behavior. *J. Appl. Behav. Anal.* **2001**, *34*, 101–122. [CrossRef] [PubMed]

17. Frederick, S.; Loewenstein, G.; O'Donoghue, T. Time discounting and time preference: A critical review. *J. Econ. Lit.* **2002**, *40*, 351–401. [CrossRef]

18. Rick, S.; Loewenstein, G. Intangibility in intertemporal choice. *Philos. Trans. R. Soc. B Biol. Sci.* **2008**, *363*, 3813–3824. [CrossRef] [PubMed]

19. De Langhe, B.; Puntoni, S.; Larrick, R.P. Linear thinking in a nonlinear world. *Harv. Bus. Rev.* **2017**, *2017*, 11.

20. Lee, K. Gender differences in Hong Kong adolescent consumers' green purchasing behavior. *J. Consum. Mark.* **2009**, *26*, 87–96. [CrossRef]

21. Ghimire, D.J.; Mohai, P. Environmentalism and Contraceptive Use: How people in less developed settings approach environmental issues. *Popul. Environ.* **2005**, *27*, 29–61. [CrossRef]

22. Paul, J.; Modi, A.; Patel, J. Predicting green product consumption using theory of planned behavior and reasoned action. *J. Retail. Consum. Serv.* **2016**, *29*, 123–134. [CrossRef]

23. Fishbein, M.; Ajzen, I. Theory-based Behavior Change Interventions: Comments on Hobbis and Sutton. *J. Health Psychol.* **2005**, *10*, 27–31. [CrossRef] [PubMed]

24. Sreen, N.; Purbey, S.; Sadarangani, P. Impact of culture, behavior and gender on green purchase intention. *J. Retail. Consum. Serv.* **2018**, *41*, 177–189. [CrossRef]

25. Mancha, R.M.; Yoder, C.Y. Cultural antecedents of green behavioral intent: An environmental theory of planned behavior. *J. Environ. Psychol.* **2015**, *43*, 145–154. [CrossRef]

26. Moon, M.A.; Mohel, S.H.; Farooq, A. I green, you green, we all green: Testing the extended environmental theory of planned behavior among the university students of Pakistan. *Soc. Sci. J.* **2020**, 1–17. [CrossRef]

27. Nagar, K. Modeling the Effects of Green Advertising on Brand Image: Investigating the Moderating Effects of Product Involvement Using Structural Equation. *J. Glob. Mark.* **2015**, *28*, 152–171. [CrossRef]

28. Moon, M.; Khalid, M.; Awan, H.; Attiq, S.; Rasool, H.; Kiran, M. Consumer's perceptions of website's utilitarian and hedonic attributes and online purchase intentions: A cognitive–affective attitude approach. *Span. J. Mark.* **2017**, *21*, 73–88. [CrossRef]

29. Hsu, C.-L.; Chang, C.-Y.; Yansritakul, C. Exploring purchase intention of green skincare products using the theory of planned behavior: Testing the moderating effects of country of origin and crossmark price sensitivity. *J. Retail. Consum. Serv.* **2017**, *34*, 145–152. [CrossRef]

30. La Barbera, F.; Ajzen, I. Control interactions in the theory of planned behavior: Rethinking the role of subjective norm. *Eur. J. Psychol.* **2020**, *16*, 401–417. [CrossRef]

31. La Barbera, F.; Ajzen, I. Moderating role of perceived behavioral control in the theory of planned behavior: A preregistered study. *J. Theor. Soc. Psychol.* **2021**, *5*, 35–45. [CrossRef]

32. Frederick, S. Measuring Intergenerational Time Preference: Are Future Lives Valued Less? *J. Risk Uncertain.* **2003**, *26*, 39–53. [CrossRef]

33. Carson, R.T.; Tran, B.R. Discounting behavior and environmental decisions. *J. Neurosci. Psychol. Econ.* **2009**, *2*, 112–130. [CrossRef]

34. Kirby, K.N.; Maraković, N.N. Delay-discounting probabilistic rewards: Rates decrease as amounts increase. *Psychon. Bull. Rev.* **1996**, *3*, 100–104. [CrossRef] [PubMed]

35. Kirby, K.N.; Petry, N.M.; Bickel, W.K. Heroin addicts have higher discount rates for delayed rewards than non-drug-using controls. *J. Exp. Psychol.* **1999**, *128*, 78–87. [CrossRef]

36. Kirby, K.N.; Finch, J.C. The hierarchical structure of self-reported impulsivity. *Pers. Individ. Differ.* **2010**, *48*, 704–713. [CrossRef] [PubMed]

37. Kirby, K.N.; Petry, N.M. Heroin and cocaine abusers have higher discount rates for delayed rewards than alcoholics or non-drug-using controls. *Addiction* **2004**, *99*, 461–471. [CrossRef]

38. Kaplan, B.A.; Amlung, M.; Reed, D.D.; Jarmolowicz, D.P.; McKerchar, T.L.; Lemley, S.M. Automating Scoring of Delay Discounting for the 21- and 27-Item Monetary Choice Questionnaires. *Behav. Anal.* **2016**, *39*, 293–304. [CrossRef] [PubMed]

39. Hayes, A.F. *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*, 2nd ed.; Guilford Press: New York, NY, USA, 2018.