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ACT NOW BEFORE IT'S TOO LATE:

The Impact of Green Marketing on Consumer's
Mindset to Mitigate Climate Change.

Rita Maria Lamy Grade Marques Baptista

Dissertation presented as partial requirement for obtaining
the Master's degree in Information Management

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**ACT NOW BEFORE IT'S TOO LATE:
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TO MITIGATE CLIMATE CHANGE**

by

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Dissertation presented as partial requirement for obtaining the Master's degree in Information Management, with a specialization in Marketing Intelligence.

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ABSTRACT

Climate change has been and continues to be a subject of growing importance due to its environmental, social, and economic impact. The last of these increasingly influences marketers to adopt sustainable methods into their procedures to improve their brand identity and to follow several principles that contribute to a better future environment. Consumers face green advertising claims that influence their behavior at either a purchase decision level or a responsible and ethical level. This study investigates consumers' mindsets toward green claims that boost perceived consumer effectiveness and pro-environmental actions. Data are collected through a questionnaire with 475 participants using Smart PLS-SEM. Findings are that consumers consider only the future ("tomorrow") to act pro-environmentally. The results also show that the older the respondent, the greater the willingness to behave sustainably. For marketers the findings can significantly improve the promotion of climate change campaigns that encourage environmentally friendly purchases.

KEYWORDS

Climate Change, CLT, PCE, Green Initiatives, Pro-environmental Action, Consumer Behavior, PLS-SEM.

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LIST OF ABBREVIATIONS

AVE	Average Variance Extracted
CLT	Construal Level Theory
FTD	Far Temporal Distance
NTD	Near Temporal Distance
PCE	Perceived Consumer Effectiveness
PE	Pro-Environmental
PEA	Pro-environmental Action
PLS	Partial Least Squares
VIF	Variation Inflation Factor

1. INTRODUCTION

Without biodiversity, living on Earth would be impossible. However, to keep up with our 21st-century lifestyles, humans are overreaching the Earth's biocapacity by 56% (Almond et al., 2020). So, instead of preserving our environment, human lifestyles are degrading it year after year. If this continues, biodiversity will end, as will life on Earth.

Climate Change is therefore at the forefront of research, given its large-scale impact on human welfare (Ng et al., 2018). Researchers have investigated how the acknowledgement of climate change is increasingly present in consumer psychology research (Hosta & Zabkar, 2021; Rizzi et al., 2020), decision making and behavior (Paparoïdamis & Thanh Tran, 2019), marketing strategies (Li et al., 2021; Reczek et al., 2018), public policy initiatives (Bartikowski & Berens, 2021; Gruber et al., 2017), and how these act as prominent social issues (Catlin et al., 2017; Goldsmith et al., 2019).

Marketeers need to put sustainable actions into practice by addressing them through their marketing initiatives (Shabnam et al., 2021). For example, among all the initiatives they commit to accomplishing by 2025, the most impressive actions of the French brand Garnier could be: using absolutely no virgin plastic for all its products and packaging (producing all packaging with reusable, recyclable, or compostable plastic); 100% of industrial sites to be carbon neutral (Garnier Sustainability Team, 2020).

Confronted with green marketing initiatives, consumers grow skeptical about an effort-benefit decision. That is, consumers make pro-environmental efforts in the present but probably see the benefits only in the future, which might discourage their present sustainable behavior.

To explain this environmental behavior, academics and researchers have been focusing on the construal level theory (CLT) of psychological distance. Investigators are seeking to understand the link between psychological distance and green marketing initiatives (Keller et al., 2022; Schuldt et al., 2018), resulting in outcomes such as: advertising effectiveness through a construal fit between visual and verbal advertising (Roose et al., 2019), an increase in consumption of eco-friendly products

through abstract information (Reczek et al., 2018), and that visualizations of distant (vs. near) scenarios tend to be more black and white (Lee et al., 2017). Even though these studies provided important information for marketers, consumers' understanding of distance, or the perception of urgency, and the role these can play in their PE (pro-environmental) actions are under-researched (Shabnam et al., 2021). Researchers question if it is possible to employ distance psychology to speed up PE actions that will mitigate climate change (Goldsmith et al., 2019; Paswan et al., 2017; Shabnam et al., 2021; Trivedi et al., 2018; Zhu et al., 2017). To address this gap, the current research focuses on integrating consumers' concepts of distance in green claims leading to an increase in perceived consumer effectiveness and pro-environmental actions.

Moreover, the more an individual thinks that (s)he can make a difference regarding environmental issues, the greater the likelihood of buying green (Ekebas-Turedi et al., 2021; Kinnear et al., 1974; Trivedi et al., 2018). Thus, as consumers are increasingly adopting a critical sense regarding their pro-environmental behavior, this study integrates the Perceived Consumer Effectiveness (PCE) belief. PCE is progressively becoming a constant presence in consumers' minds, impacting their perceptions. By measuring the consumers' construal evaluation of their actions in near and far terms (Shabnam et al., 2021) and the PCE, the findings will enhance pro-environmental efforts and support marketers by specifying more effective policy and social marketing programs.

This study has three main goals: a) to understand what type of green claim can trigger pro-environmental actions, b) to find ways to close the gap between effort and the actual feasibility of a pro-environmental action, and c) to empirically understand the impact on PCE of green claims highlighting temporal benefits and environmental benefits. We aim to investigate temporal benefits' effect on green claims and perceived consumer effectiveness that triggers pro-environmental actions.

To accomplish these objectives, the research employs a survey to understand an individual's reaction when facing an image illustrating climate change consequences and the perception of environmental conservation benefits accruing in the present or in the future.

In addition to furthering more responsible climate awareness, this research expands the literature with three significant contributions. First, it contributes to the advertising literature associated with green marketing, thereby providing ideas for marketers on how to initiate a sense of desire for sustainable and responsible behavior. Second, this study offers new information for two theoretical models, PCE and the CLT, in a complementary way to trigger PE actions. Third, it integrates the concept of "perceived feasibility" as consumers' consideration of their ability to behave pro-environmentally. In this way the current investigation adds value to Shabnam et al.'s (2021) recent findings explaining the potential to integrate "knowledge distance" in determining consumer behavior in terms of PE actions while theorizing CLT.

The remainder of the paper reviews the theoretical background of green marketing, psychological distance, and perceived consumer effectiveness in achieving pro-environmental actions (summarized in **Appendix A**). Then we present a conceptual model together with the hypotheses. Following this we describe the research methodology and data analysis, and then a discussion of the practical implications, limitations of the current research, and recommendations for future related research.

2. LITERATURE REVIEW AND HYPOTHESES

2.1. Green Marketing: The Means to an End

Green Marketing implies creating and promoting products based on their actual or perceived environmental sustainability. Promoting goods and services relies on green advertising, which refers to any ad that incorporates one of the following conditions: "1. Explicitly or implicitly addresses the relationship between a product/service and the biophysical environment. 2. Promotes a green lifestyle with or without highlighting a product/service. 3. Presents a corporate image of environmental responsibility" (Banerjee et al., 1995). Green claims can thus influence decision-making by highlighting benefits and motivations (Ekebas-Turedi et al., 2021).

However, in some circumstances this communication might not be straightforward, leading to a (mis)match between consumers' point of view of green products and the benefits (Ekebas-Turedi et al., 2021). For that reason, adequate manipulation of message framing is of the greatest importance. According to Amatulli et al. (2019), framing a message means "highlighting specific aspects and making them more salient in communication". Moreover, prior research suggests that message framing is essential when created around consumers' perceived benefits (B. Royne et al., 2012). Therefore, benefits should be framed in green advertisements to incite purchase intention.

Furthermore, even though conditions for consumers' buying decisions differ, there is always a cognitive consistency: temporal benefit (B. Royne et al., 2012). This means an explicit benefit of time savings and/or efficiency. The current research creates new knowledge for message framing by joining prior research on the topic to psychological distance theory regarding claims (temporal benefits). Building a claim that appeals to the intended target consumer increases green purchasing intention and daily habits, and in this way marketers reassure customers by claiming that their efforts (pro-environmental actions) yield results (climate change mitigation).

In summary, green marketing is a means to achieve pro-environmental action by influencing individual behavior to reduce the adverse impact on the environment (Donmez-Turan, 2020; Shabnam et al., 2021).

2.2. The Effect of Psychological Distance on Pro-environmental Behaviour

Construal Level Theory (CLT) research has been extended to applied psychology and is increasingly focused on consumer research, mainly green consumerism, climate change, and sustainability (Adler & Sarstedt, 2021; Brügger et al., 2016). CLT presents a way to comprehend the behavior in decision-making and reasoning by connecting the construal level – the degree of mental abstraction – to the psychological distance between an observer and a target.

In Construal Level Theory terms, concrete and detailed messages are linked to low-level construal (Trope & Liberman, 2010). In contrast, high-level construal is related to abstract and general messages. Consequently, marketers, policymakers, and researchers have used CLT practices to enhance their advertisements. Marketers can build their ads around customers' low or high-level construal by considering companies' target audiences.

In this research participants are exposed to Near and Distant green statements to determine which claim tends to be more effective for consumers' choice. In other words, when a consumer faces near (or distant) claims, will (s)he be more willing or less willing to take pro-environmental actions (efforts/intentions)? The findings of earlier research are uncertain regarding this subject. According to Wiebe et al. (2017), it might be possible that a consumer chooses a product over another if (s)he knows that it has a psychologically proximal impact instead of a distant impact.

Also, previous research mentions that control beliefs affect consumers' feasibility or performance evaluation in proximal and distant situations (Shabnam et al., 2021). As a result, consumers' intentions in the present are the mirror image of their present thoughts on climate welfare and a distant perception of feasibility. Bearing this in mind, the current research addresses the gap between the intention/effort and the pro-environmental (PE) action.

Moreover, this study complements recent studies on PE purchase intention that introduces "knowledge distance", meaning "a dichotomous variable, describing 'knowledge related to energy-saving product purchase' (near) and 'knowledge related to environmental problems' (distant)" (Shabnam et al., 2021). To approach this new concept, we use the construct "perceived feasibility", which implies the degree of mental abstraction to which an individual is considering making an effort to perform a behavior, in this case, a pro-environmental action (Shabnam et al., 2021; Trope & Liberman, 2010).

Bearing this in mind, this research formally proposes:

H1: Individuals faced with green statements have perceived near feasibility when the environmental benefits presented in the message are psychologically near.

H2: Individuals faced with green statements have perceived distant feasibility when the environmental benefits presented in the message are psychologically distant.

2.3. Perceived Consumer Effectiveness (PCE)

During the green decision-making process, the consumer goes through different steps in which (s)he will gather the information to decide on the final product choice. Nowadays, a new factor can be considered in this process – Perceived Consumer Effectiveness. This last concept was introduced by Kinnear et al. (1974), identifying the "degree to which the consumer believes that the efforts of an individual can make a difference or contribute" (Ekebas-Turedi et al., 2021) to environmental issues. Therefore, the higher the PCE level, the higher the probability that consumers will act pro-environmentally (Kinnear et al., 1974).

However, not everyone interested in saving the environment believes they can support an environmental issue. Marketeers need to shift this type of consumer mindset (i.e., low-level PCE). For that, consumers need to be faced with other-benefit messages to address altruistic and empathetic feelings in the consumer's minds *vis-à-vis* others in society (Ekebas-Turedi et al., 2021). Marketeers must convince consumers that their pro-environmental actions actually make the world better. The present research addresses this limitation on how marketeers could stimulate consumers' level of PCE to start acting more toward pro-environmental behavior (Amatulli et al., 2019).

As such, this study suggests:

H3: Green statements influence consumers' PCE level, generating pro-environmental actions.

2.4. Age as a Demographic Factor that Influences Pro-environmental Behaviour

David Attenborough once said, “People who are going to be around in 10 years’ time, in 20 years’ time, will blame us profoundly if we don’t do anything about it”. In fact, climate change repercussions will affect today’s youngest generation. Therefore, it seems essential to discuss how age can affect pro-environmental actions. Also, one of the most fundamental pieces of information for evaluating and understanding purchasing behavior and consumer attitudes when it comes to marketing purposes is demographic parameters (age, gender, income, etc.)(Shahsavari et al., 2020).

According to Ma et al. (2022), the younger the consumers, the greater their willingness to purchase green products. Moreover, research has confirmed that the younger the consumers are, the more likely they are to accept innovative ideas and take decisions easier (Ma et al., 2022; Shahsavari et al., 2020).

On the contrary, other researchers have confirmed that older age groups tend to be better regarding pro-environmental behavior (Alzubaidi et al., 2020; Gilg et al., 2005; Shahsavari et al., 2020).

To address these contradictory statements, we propose the following hypothesis:

H4: Age influences the willingness to pro-environmentally act when exposed to a climate change consequence.

2.5. The Interaction between Construal Level Theory and Perceived Consumer Effectiveness

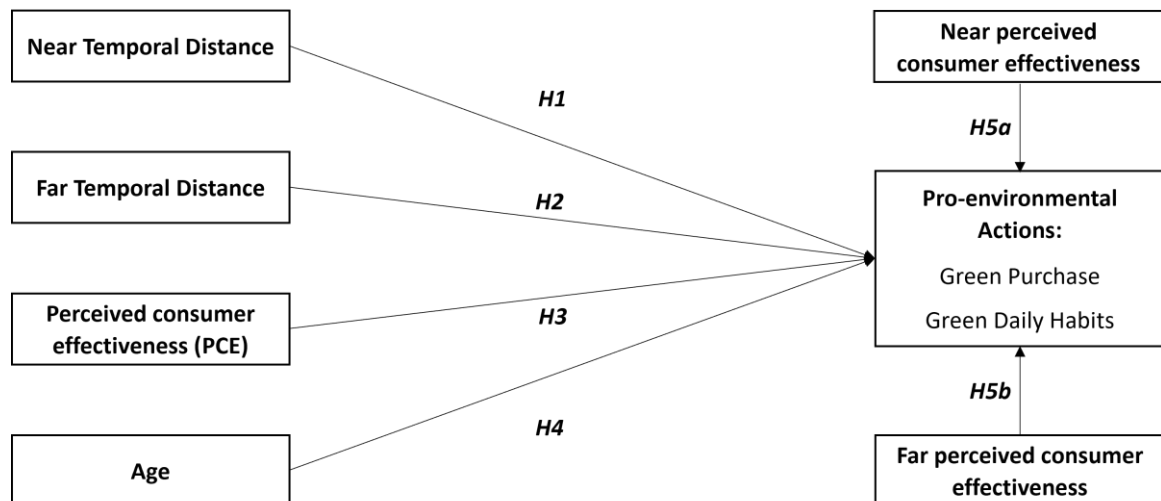
The current research provides new knowledge by interacting with CLT and PCE. We not only measure consumers' level of PCE when faced with a green advertisement that highlights temporal benefits but also seek to understand the interactive effect of PCE with CLT. Hence, consumers' construal evaluation of their actions in the near or distant future should correlate with their PCE level. We can say that in principle the nearer the benefits are to the consumer, the greater should be the PCE (Wiebe et al., 2017). To study that, we create two variables in the conceptual model (**Figure 1**), "Near Perceived

Consumer Effectiveness" and "Distant Perceived Consumer Effectiveness", seeking to determine the interaction of Near or Distant Temporal Distance with the level of Perceived Consumer Effectiveness. Furthermore, to measure the interaction between these two items, we suggest the following hypotheses:

H5a: When faced with a green statement, individuals with higher PCE, compared to those with lower PCE, react more positively to messages framed with near temporal benefits.

H5b: When faced with a green statement, individuals with higher PCE, compared to those with lower PCE, react more positively to messages framed with distant temporal benefits.

Figure 1: Conceptual Model



3. METHODOLOGY

For this research we conduct a survey to evaluate an individual's perception of environmental conservation and opinion toward green advertisement.

3.1. Survey: Exploring Individual's Green Advertisement Perception and Environmental Concerns

Objectives. By using a questionnaire, this study aims to understand the present-day level of environmental concern, how individuals evaluate their pro-environmental actions, and how they would act regarding proximal or distant pro-environmental behaviors.

Procedure. The survey has five sections: a) an image of a before and after climate change consequences in the city of Lisbon, b) understanding of consumer's green purchase intention, c) measure participant's PCE level, d) participant's opinion regarding pro-environmental actions accruing in the present or the future, and e) participant's demographic data. The first section shows the image in **Appendix B**. Participants were to consider the image before responding to the rest of the questionnaire. The last block of questions is about the participant's demographic information – gender, age, country of birth, country of residence, level of education, current occupation, and income. For all constructs the items were measured on seven-point Likert scales, ranging from 1 "Strongly disagree" to 7 "Strongly agree" as anchors.

Participants. The survey was shared through various social networks and on the Amazon Mechanical Turk website. We obtained 588 responses from 33 countries, mainly from Portugal and the United States of America. The demographics have a complete explanation in the next part.

Measures. All measures are reported in **Appendix C** and Section 4, below.

4. RESULTS

4.1. Demographics Sample

We obtained 588 responses (350 via the Amazon Mechanical Turk platform), but after data cleaning only 475 were retained. We deleted incomplete responses and those for which the time spent looking

at the image in the first section was less than five seconds (eliminating responses from those who had not paid attention to the image and/or to the text accompanying it).

Table 1 reports the demographic data of the sample, which has an almost even number of female and male respondents, 50.9% and 48.6%, respectively. More than 62.8% of the participants were less than 40 years old. Regarding the level of education, most respondents reported having at least a bachelor's degree. Almost 70% of our sample is employed, and 45.6% report a monthly income under 1500€. The respondents come from 33 countries, including Portugal and the United States, which are also the countries where they mainly reside.

4.2. Measurement Model Assessment

As the PLS-SEM (partial least square structural equation model) technique is often preferable with smaller sample sizes and more complex models (Hair et al., 2012), the present study uses this technique to test pro-environmental actions. PLS-SEM is also the most commonly recommended statistical model for improving research based on theoretical frameworks, as well as contributing to their growth and comprehension. Moreover, PLS-SEM is gaining appreciation in marketing research (Bhutto et al., 2020; Hair et al., 2012). We used Smart PLS (version 3.3.9) to study the survey results.

In this conceptual model, we used the following reflective constructs to study internal consistency, convergent validity, and discriminant validity (Hair et al., 2014). For internal consistency measurement, we used Cronbach's Alpha and composite reliability. **Table 2** reports that for both criteria the values are higher than 0.70, except for the latent variable "Perceived Consumer Effectiveness", which is lower than 0.60. For both criteria, the higher the value is above 0.70, the higher the reliability level, suggesting internal consistency (Ab Hamid et al., 2017; Hair et al., 2014).

Table 1: Demographic data of respondents (N = 475).

Demographic Variable	Types	Frequency	Percentage (%)
Gender	Male	231	48.6
	Female	242	50.9
	Prefer not to say	2	0.4
Age	16-29	176	37.1
	30-39	122	25.7
	40-39	73	15.4
	50-59	55	11.6
	60-69	41	8.6
	70-79	8	1.7
Level of Education	Less than high school	2	0.4
	High school graduate	81	17.1
	Bachelor's Degree	255	53.7
	Master's Degree	114	24.0
	Doctorate	11	2.3
	Other Professional Degree	12	2.5
Occupation	Employed	331	69.7
	Unemployed	31	6.5
	Retired	31	6.5
	Student	50	10.5
	Working Student	24	5.1
	Prefer not to say	8	1.7
	Monthly Income	<500€	60
501€-1000€		61	12.8
1001€-1500€		96	20.2
1501€-2000€		85	17.9
>2000€		87	18.3
No salary		53	11.2
Prefer not to say		33	6.9

Regarding convergent validity, we applied the average variance extracted (AVE). In **Table 2**, we can see that all the values exceed 0.5, indicating an adequate convergent validity (Ab Hamid et al., 2017). In terms of discriminant validity, we first assess the variance inflation factor (VIF), which indicates a problem of multicollinearity and general methodological bias. In this study, other than the constructs “Far Perceived Consumer Effectiveness” and “Near Perceived Consumer Effectiveness”, we can conclude that multicollinearity is not a problem as the VIF is less than 3 (Hair et al., 2020).

Concerning the Partial Least Squares (PLS), we examined the loadings of the variables (**Table 2**). Constructor loadings varied from 0.751 to 1.784.

Table 2: Scale's reliability, collinearity, and discriminant validity.

Constructs	Cronbach's Alpha	CR	AVE	VIF	Item	Loadings
Age	1	1	1	1.045	AGE	1
Far Temporal Distance	0.921	0.941	0.76	2.836	FTD01	0.829
					FTD02	0.891
					FTD03	0.891
					FTD04	0.897
					FTD05	0.849
Near Temporal Distance	0.882	0.914	0.681	2.198	NTD01	0.828
					NTD02	0.872
					NTD03	0.808
					NTD04	0.861
					NTD04	0.751
Perceived Consumer Effectiveness	0.598	0.829	0.709	2.157	PCE01	0.892
					PCE02	0.790
Pro-Environmental Actions	0.865	0.918	0.788		PEA01	0.882
					PEA02	0.891
					PEA03	0.889
Far Perceived Consumer Effectiveness	1	1	1	4.434	PCE*FTD	1.784
Near Perceived Consumer Effectiveness	1	1	1	3.648	PCE*NTD	1.504

Notes: CA, Cronbach's α ; CR, composite reliability; AVE, average variance extracted; VIF, variance inflation factor.

In the context of a further discriminant validity analysis, we evaluate the Fornell-Larcker criterion (Fornell & Lacker, 1981) and the Heterotrait-Monotrait Ratio (Henseler et al., 2015). The Fornell-Larcker criterion compares the square root of AVE with the correlation of latent constructs to determine discriminant validity (Fornell & Lacker, 1981). Also, AVE's square root should be higher than the correlations between latent variables. The data in **Table 3** confirm the existence of discriminant validity in this study.

Then, according to Henseler et al. (2015), we can verify that the values of the Heterotrait-Monotrait Ratio are less than 1, indicating reinforcement of discriminant validity. **Tables 3 and 4** display all of the values.

Table 3: Fornell-Larcker discriminant validity.

Constructs	1	2	3	4	5	6	7
1. Age	1						
2. Far Temporal Distance	-0.092	0.872					
3. Near Temporal Distance	0.052	0.655	0.825				
4. Perceived Consumer Effectiveness	0.036	0.652	0.662	0.842			
5. Far Perceived Consumer Effectiveness	0.101	-0.602	-0.379	-0.432	1		
6. Pro-Environmental Actions	0.068	0.599	0.55	0.629	-0.394	0.888	
7. Near Perceived Consumer Effectiveness	0.024	-0.45	-0.382	-0.421	0.835	-0.371	1

Table 4: Heterotrait-Monotrait ratio.

Constructs	1	2	3	4	5	6	7
1. Age							
2. Far Temporal Distance	0.096						
3. Near Temporal Distance	0.054	0.723					
4. Perceived Consumer Effectiveness	0.048	0.878	0.922				
5. Far Perceived Consumer Effectiveness	0.101	0.626	0.401	0.561			
6. Pro-Environmental Actions	0.073	0.671	0.625	0.857	0.422		
7. Near Perceived Consumer Effectiveness	0.024	0.467	0.406	0.546	0.835	0.398	

4.3. Structural Model Assessment

The findings of the bootstrapping analysis are employed to evaluate the structural model and research hypotheses, as shown in **Table 5**. Note that we divided our sample into two groups, one in which the respondents are males and the other for females, and a multi-group analysis (MGA) was undertaken to understand if pro-environmental actions changed according to the participant's gender.

The bootstrapping technique (Hair et al., 2014) (**Figure 2**) with 5,000 iterations and a significance level of 0.1 was used to analyze the significance of the path coefficients, demonstrating whether our hypotheses are accepted or not.

Table 5: Multi-group analysis results.

Path	Female (n=242)		Male (n=231)		Female vs Male		Conclusion	
	β	<i>p</i> -value	β	<i>p</i> -value	β (Female-Male)	<i>p</i> -value	Female	Male
H1 NTD → PEA	0.068	0.346	0.173	0.044	-0.105	0.351	R	A
H2 FTD → PEA	0.315	0	0.263	0.002	0.051	0.662	A	A
H3 PCE → PEA	0.406	0	0.251	0.005	0.154	0.183	A	A
H4 A → PEA	0.071	0.091	0.080	0.091	-0.009	0.886	A	A
H5a NPCE → PEA	-0.104	0.263	-0.022	0.781	-0.082	0.495	R	R
H5b FPCE → PEA	0.137	0.073	-0.077	0.233	0.214	0.041	A	R

Notes: NTD, Near Temporal Distance; PEA, Pro-Environmental Actions; FTD, Far Temporal Distance; PCE, Perceived Consumer Effectiveness; NPCE, Near Perceived Consumer Effectiveness; FPCE, Far Perceived Consumer Effectiveness; A, Accepted; R, Rejected

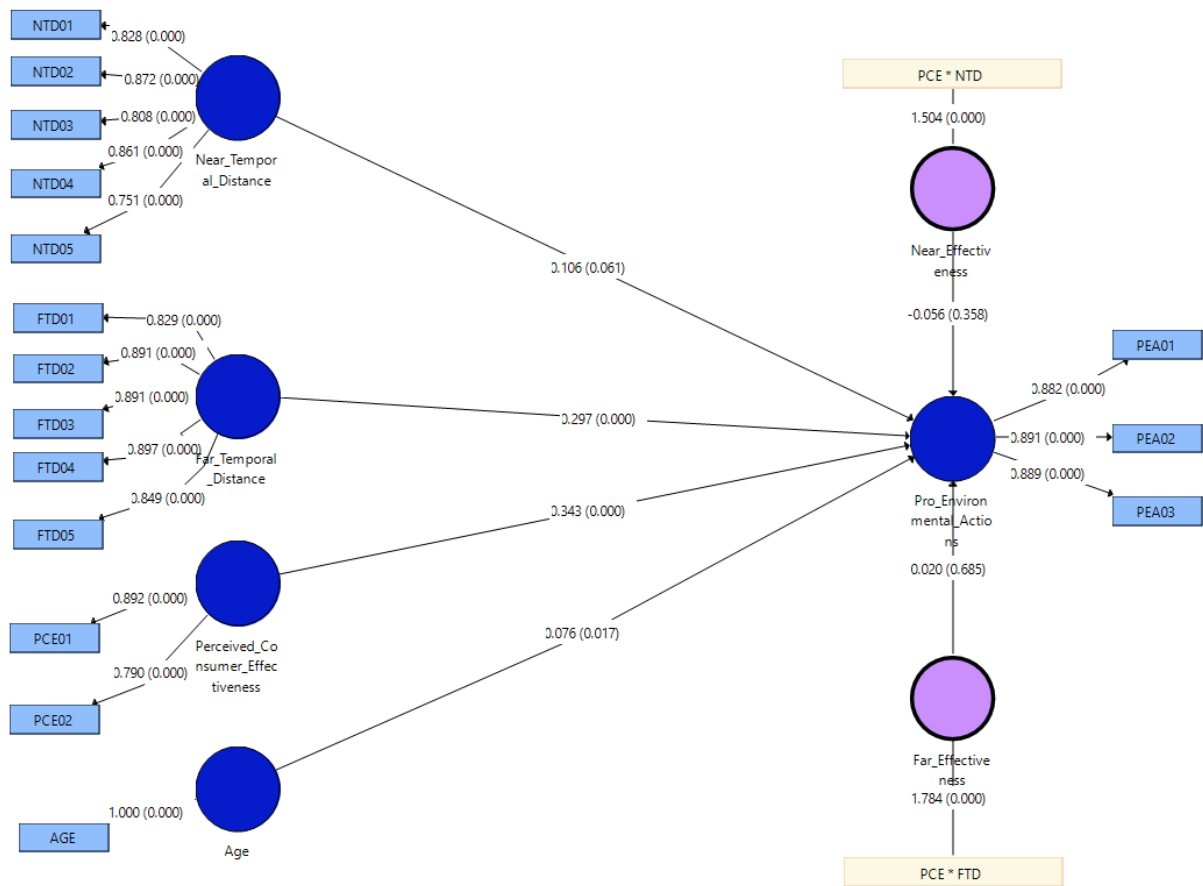
Hypotheses H2, H3, and H4 are supported for both genders – there is a positive relationship between far temporal distance and female ($\beta=0.315$ and $p < 0.1$) and male ($\beta=0.263$ and $p < 0.1$) pro-

environmental action, and a positive relationship between perceived consumer effectiveness and female ($\beta=0.406$ and $p < 0.1$) and male ($\beta=0.251$ and $p < 0.1$) pro-environmental action.

There is also a positive relationship between age and female ($\beta=0.071$ and $p < 0.1$) and male ($\beta=0.080$ and $p < 0.1$) pro-environmental action. Regarding the connection between near temporal distance and PEA, hypothesis H1 was rejected for females ($\beta=0.068$ and $p > 0.1$) but supported for males ($\beta=0.173$ and $p < 0.044$). Similarly, for the relationship between far perceived consumer effectiveness and PEA, hypothesis H5b was supported for females ($\beta=0.137$ and $p < 0.1$) but rejected for males ($\beta=-0.077$ and $p > 0.1$). Finally, there was a negative relationship between NPCE and PEA, meaning that hypothesis H5a was rejected for both genders.

We use the term “moderation” when the link between two concepts "depends on the values of a third variable" (Hair et al., 2017). Hence, the moderation of PCE over the relationship between NTD and PEA is statistically significant for females ($\beta=0.137$ and $p < 0.1$). This indicates that the higher the level of PCE in females, the higher the probability of a positive relationship between NTD and PEA.

Figure 2: Bootstrapping Results



Notes: NTD, Near Temporal Distance; PEA, Pro-Environmental Actions; FTD, Far Temporal Distance; PCE, Perceived Consumer Effectiveness; NPCE, Near Perceived Consumer Effectiveness; FPCE, Far Perceived Consumer Effectiveness.

5. DISCUSSION

5.1. General Discussion

It is no secret. One needs only to watch TV to see that today's news is all about the damages that Russia's war in the Ukraine is provoking; the extreme temperatures around the world; and the Afghan earthquake, among other tragic news pointing to the fear that the years of our life on Earth are numbered. Individuals are being increasingly overwhelmed with reports of activities that can result or have already resulted in climate change. This reality is becoming ever more evident in the eyes of these news viewers. This research helps to shrink the gap between an individual's effort and her/his action toward pro-environmental behavior.

Moreover, our study demonstrates how green statements with messages highlighting present or future environmental concerns could influence an individual's perceived feasibility and PCE level. The results indicate that perceived feasibility has to do with an abstract mindset that can increase the level of PCE and PE actions. Thus, we distinguish two types of mindsets regarding how people build information in their heads: the abstract and the concrete mindset. Here the abstract mindset is linked with the far temporal distance and the concrete with the near temporal distance.

In our study, when evaluating these two mindsets we understand that the PE actions are triggered by having an abstract mindset, and since the latter is considered an event perceived from a far distance, we can suggest that people tend to leave the PE actions to the next day. Here, considering "next day" a time variable in the far distance. Our results therefore indicate that the gap between the attitude and the PE actions is an abstract mindset in which "tomorrow" is the "best time" to take action.

Then, based on our hypothesis H4 outcomes, we can note that the older the individual is, the higher the intention to act pro-environmentally, thereby contradicting the common belief that younger generations tend to act more sustainably (Ma et al., 2022). This scenario likely occurs because people older than 30 tend to have more money to spend on high-quality purchases like eco-friendly products,

for instance. Another example could be that this group of individuals also tends to have a home where they can choose to use renewable energy as an alternative to standard energy. Further, our hypothesis 5A was not supported, as in our sample an individual's perceived near feasibility did not affect the PCE level and therefore did not increase PE actions.

Considering what is mentioned above, this research contributes, as we stated in the introduction, to the literature that focuses on understanding consumer behavior when faced with green claims and to advertising literature in general. Also, it extends research on the theoretical models of PCE and the CLT in a complementary way to trigger PE actions. Finally, this study contributes to the findings of Shabnam et al. (2021) addressing their new concept, "perceived feasibility".

5.2. Practical Implications

The results of this research have significant practical implications that meet the goals set out above for our study. Two of our objectives sought to understand what type of green claim could trigger PE actions and how we could close the gap between effort and the feasibility of a pro-environmental action. The findings suggest that marketers create green initiatives that could shift this abstract mindset to a concrete one and consumers would act in the moment rather than the future. In this sense, marketers could elaborate a campaign focusing on the importance of acting now rather than later, perhaps shocking consumers by showing images of today's climate change consequences with the idea that the time to act is now and demonstrate that if they make this effort, here is "what is in it for you", meaning here are the immediate benefits for consumers. Humans, by nature, mainly act in the expectation of reward. So, even though the result is to mitigate climate change, we should attract people's attention by highlighting benefits that are personal and immediate (B. Royne et al., 2012).

Furthermore, the results suggest that age and gender influence PE actions, and as a result, marketers should adapt their message accordingly. If people of older age take pro-environmental actions, marketers could find the adequate tone to deliver their message. If targeting a younger audience, on the other hand, marketers would approach with a more youthful, informal tone.

The final goal was to empirically understand the impact on PCE of green claims that highlight temporal and environmental benefits. The findings of this study indicate that the higher the PCE level, the more likely it is that an individual will take PE actions. The findings also determine that the individuals that tend to have a higher PCE level are males with abstract mindsets. As a result, green claims highlighting temporal and environmental benefits seem to affect those individuals to a greater degree.

5.3. Limitations and Directions for Future Research

While there were some interesting and significant discoveries from this study, there are several limitations. First, we did not cover all types of psychological distance. We took into account only the time distance. We expect that considering all psychological distance types could provide more in-depth knowledge regarding the precedents of pro-environmental behavior.

We did not study any specific green initiative, and this may have influenced the results. Also, we excluded numerous items from our survey including, for example, message concreteness and psychological distance benefits. Moreover, we neglected to include price factors in this study, which may have revealed interesting results. Analyzing price factors could be an essential external factor in increasing green purchase intention and green daily habits.

In addition, it could be interesting to understand why men were the only ones who would act pro-environmentally in the present. The findings suggested that males have a concrete mindset regarding sustainable behavior. In other words, they are ready to act “now” toward a better environment. Why do women tend to have an abstract mindset?

Based on the insights provided, future research could replicate the marketing campaign example mentioned and measure it through an eye-tracking study. Also, it would be interesting to repeat this research two years from now. For example, present three shocking campaigns to the participants and see their reaction in year 0. Then in year 1, investigate which (if any) of the participants increased their green purchase intentions and green daily habits and recreate the campaigns with the year 0 eye-tracking results. In year 2, evaluate again if the number of participants who shifted their thinking toward PE actions increased.

6. CONCLUSION

The current research examines how green claims can shift consumers' mindsets to increase pro-environmental actions with the help of construal level theory, PCE, and age as precedents. The study finds evidence to support the proposed relationship by modelling PLS-SEM's structural equations. Results suggest that consumers tend to have an abstract mindset when taking pro-environmental actions and confirm that older people tend to become more environmentally involved. Therefore, marketers could use a marketing campaign to shift the consumer's mind to act now rather than tomorrow by considering the target audience. This campaign can use visual and verbal advertisement suggestions from previous findings to enhance its performance.

7. REFERENCES

- Ab Hamid, M. R., Sami, W., & Mohamed Sidek, M. H. (2017). Discriminant Validity Assessment: Use of Fornell & Larcker criterion versus HTMT Criterion. *Journal of Physics: Conference Series*, 890.
- Adler, S., & Sarstedt, M. (2021). Mapping the jungle: A bibliometric analysis of research into construal level theory. *Psychology & Marketing*, 38(9), 1367–1383.
- Almond, R.E.A, Grooten, M., & Peterson. (2020). *Living Planet Report 2020—Bending the curve of biodiversity loss*. WWF.
- Alzubaidi, H., L. Slade, E., & K. Dwivedi, Y. (2020). Examining antecedents of consumers' pro-environmental behaviours: TPB extended with materialism and innovativeness. *Journal of Business Research*, 122, 685–699.
- Amatulli, C., De Angelis, M., Pelusso, A. M., Soscia, I., & Guido, G. (2019). The Effect of Negative Message Framing on Green Consumption: An Investigation of the Role of Shame. *Journal of Business Ethics*, 157(4), 1111–1132.
- B. Royne, M., Martinez, J., Oakley, J., & K.Fox, A. (2012). The Effectiveness of Benefit Type and Price Endings in Green Advertising. *Journal of Advertising*, 41(4), 85–102.
- Banerjee, S., Gulas, C. S., & Iyer, E. (1995). Shades of Green: A Multidimensional Analysis of Environmental Advertising. *Journal of Advertising*, 24(2), 21–31.
- Bartikowski, B., & Berens, G. (2021). Attribute framing in CSR communication: Doing good and spreading the word – But how? *Journal of Business Research*, 131, 700–708.
- Bhutto, M. H., Tariq, B., Azhar, S., Ahmed, K., Khuwaja, F. M., & Han, H. (2020). Predicting consumer purchase intention toward hybrid vehicles: Testing the moderating role of price sensitivity. *European Business Review*, 34(1), 62–84.

- Brügger, A., Morton, T. A., & Dessai, S. (2016). "Proximising" climate change reconsidered: A construal level theory perspective. *Journal of Environmental Psychology, 46*, 125–142.
- Catlin, J. R., G. Luchs, M., & Phipps, M. (2017). Consumer Perceptions of the Social vs. Environmental Dimensions of Sustainability. *Journal of Consumer Policy, 40*(3), 245–277.
- Donmez-Turan, A. (2020). The analysis of pro-environmental behavior based on ecological worldviews, environmental training/knowledge and goal frames. *Journal of Cleaner Production, 279*.
- Ekebas-Turedi, C., Kordrostami, E., & Benoit, I. D. (2021). The impact of message framing and perceived consumer effectiveness on green ads. *Journal of Consumer Marketing, 38*(4), 386–396.
- Fornell, C., & Lacker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50.
- Gilg, B., Barr, S., & Ford, N. (2005). Green consumption or sustainable lifestyles? Identifying the sustainable consumer. *Futures, 37*(6), 481–504.
- Goldsmith, K., Roux, C., & Wilson, A. V. (2019). Can Thoughts of Having Less Ever Promote Prosocial Preferences? The Relationship between Scarcity, Construal Level, and Sustainable Product Adoption. *Journal of the Association for Consumer Research, 5*(1).
<https://doi.org/10.1086/706506>
- Gruber, V., Kaliauer, M., & Schlegelmilch, B. B. (2017). Improving the Effectiveness and Credibility Of Corporate Social Responsibility Messaging: An Austrian Model Identifies Influential CSR Content and Communication Channels. *Journal of Advertising, 57*(4), 397–409.
- Hair, J., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research, 109*, 101–110.

- Hair, J., Ringle, C., & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (1st ed.). SAGE Publications.
- Hair, J., Ringle, C., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). SAGE Publications.
- Hair, J., Sarstedt, M., Ringle, C., & Mena, J. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science*, 40(Issue 3), 414–433.
- Henseler, J., Ringle, C., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135.
- Hosta, M., & Zabkar, V. (2021). Antecedents of Environmentally and Socially Responsible Sustainable Consumer Behavior. *Journal of Business Ethics*, 171(2), 273–293.
- Keller, A., Marsh, J. E., Richardson, B. H., & Ball, L. J. (2022). A systematic review of the psychological distance of climate change: Towards the development of an evidence-based construct. *Journal of Environmental Psychology*, 81.
- Kim, Y. (2011). Understanding Green Purchase: The Influence of Collectivism, Personal Values and Environmental Attitudes, and the Moderating Effect of Perceived Consumer Effectiveness. *Seoul Journal of Business*, 17(1), 65–92.
- Kinncar, T. C., Taylor, J. R., & Ahmed, S. A. (1974). Ecologically Concerned Consumers: Who are they? *Journal of Marketing*, 38(2), 20–24.
- Lee, H., Fujita, K., Xiaoyan, D., & Unnava, H. R. (2017). The Role of Temporal Distance on the Color of Future-Directed Imagery: A Construal-Level Perspective. *Journal of Consumer Research*, 43(5), 707–725.

- Li, C., Swaminathan, S., & Kim, Junhee. (2021). The role of marketing channels in consumers' promotional point redemption decisions. *Journal of Business Research*, 125, 314–323.
- Ma, L., Li, Z., & Zheng, D. (2022). Analysis of Chinese consumers' willingness and behavioral change to purchase Green agri-food product online. *PLOS ONE*, 17(4), 1–13.
- Mostafa, M. M. (2007a). A hierarchical analysis of the green consciousness of the Egyptian consumer. *Psychology & Marketing*, 24(5), 445–473.
- Mostafa, M. M. (2007b). Gender differences in Egyptian consumers' green purchase behaviour: The effects of environmental knowledge, concern and attitude. *International Journal of Consumer Studies*, 31(3), 220–229.
- Ng, A. K. Y., Wang, T., Yang, Z., Li, K. X., & Jiang, C. (2018). How is Business Adapting to Climate Change Impacts Appropriately? Insight from the Commercial Port Sector. *Journal of Business Ethics*, 150(4), 1029–1047.
- Paparoidamis, N. G., & Thanh Tran, H. T. (2019). Making the world a better place by making better products: Eco-friendly consumer innovativeness and the adoption of eco-innovations. *European Journal of Marketing*, 53(8), 1546–1584.
- Paswan, A., Guzman, F., & Lewin, J. (2017). Attitudinal determinants of environmentally sustainable behavior. *Journal of Consumer Marketing*, 34(5), 414–426.
- Reczek, R. W., Trudel, R., & White, K. (2018). Focusing on the forest or the trees: How abstract versus concrete construal level predicts responses to eco-friendly products. *Journal of Environmental Psychology*, 57, 87–98.
- Rizzi, F., Annunziata, E., Contini, M., & Frey, M. (2020). On the effect of exposure to information and self-benefit appeals on consumer's intention to perform pro-environmental behaviours: A focus on energy conservation behaviours. *Journal of Cleaner Production*, 270.

- Roose, G., Vermier, I., Geuens, M., & Van Kerckhove, A. (2019). A Match Made in Heaven or Down Under? The Effectiveness of Matching Visual and Verbal Horizons in Advertising. *Journal of Consumer Psychology, 29*(3), 411–427.
- Schuldt, J. P., Rickard, L. N., & Yang, Z. J. (2018). Does reduced psychological distance increase climate engagement? On the limits of localizing climate change. *Journal of Environmental Psychology, 55*, 147–153.
- Shabnam, S., Quaddus, M., Roy, S. K., & Quazi, A. (2021). Consumer belief system and pro-environmental purchase intention: Does psychological distance intervene? *Journal of Cleaner Production, 327*, 1–15.
- Shahsavari, T., Kubeš, V., & Baran, D. (2020). Willingness to pay for eco-friendly furniture based on demographic factors. *Journal of Cleaner Production, 250*.
- Straughan, R. D., & Roberts, J. A. (1999). Environmental segmentation alternatives: a look at green consumer behavior in the new millennium. *Journal of Consumer Marketing, 16*(6), 558–575.
- Taylor, S., & Todd, P. (1995). Decomposition and crossover effects in the theory of planned behavior: A study of consumer adoption intentions. *International Journal of Research in Marketing, 12*(2), 137–155.
- Trivedi, R. H., Patel, J. D., & Acharya, N. (2018). Causality analysis of media influence on environmental attitude, intention and behaviors leading to green purchasing. *Journal of Cleaner Production, 196*, 11–22.
- Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review, 117*(2), 440–463.
- Wiebe, J., Basil, D. Z., & Runté, M. (2017). Psychological distance and perceived consumer effectiveness in a cause-related marketing context. *International Review on Public and Nonprofit Marketing, 14*(2), 197–215.

Zhu, L., He, Y., Chen, Q., & Hu, M. (2017). It's the thought that counts: The effects of construal level priming and donation proximity on consumer response to donation framing. *Journal of Business Research*, 76, 44–51.

8. APPENDIXES

APPENDIX A: Literature Review Table

Topic	Research	References
The impact of message framing and perceived consumer effectiveness on green ads	Shows the moderating effect of PCE on the effectiveness of message framing (self-benefit vs. other-benefit messages) in green advertising.	(Ekebas-Turedi et al., 2021)
The Effect of Negative Message Framing on Green Consumption: An Investigation of the Role of Shame	Explains that negatively framed messages are more effective than positively framed ones in prompting consumers to engage in pro-environmental behaviors. Having environmental concerns and type of product as moderators.	(Amatulli et al., 2019)
The Effectiveness of Benefit Type and Price Endings in Green Advertising.	Studies the effect of product attribute framing (personal benefit vs. environmental benefit) on the overall product judgment, such as product quality.	(B. Royne et al., 2012)
Psychological distance and perceived consumer effectiveness in a cause-related marketing context	Addresses how psychological distance message framing and PCE influence consumer response to cause-related marketing appeals.	(Wiebe et al., 2017)

Consumer belief system and pro-environmental purchase intention: Does psychological distance intervene?

This study combines consumers' belief systems and distance-based construal evaluation to understand their pro-environmental behavior. (Shabnam et al., 2021)

Attitudinal determinants of environmentally sustainable behavior

This research focuses on pro-environmental behavior and investigates its dimensions and determinants. (Paswan et al., 2017)

Focusing on the forest or the trees: How abstract versus concrete construal level predicts responses to eco-friendly products

The research suggests that the nature of eco-friendly products (i.e., purchasing and using them instead of traditional products benefits subsequent generations sometime in the future) may, at times, be incongruent with the individual's mindset in the current decision context. (Reczek et al., 2018)

APPENDIX B: Image used in the Survey

According to the Climate Central Study, Lisbon will be strongly affected by sea levels rise:

Research discloses realistic projections about the planet's future with a dramatic balance of the effects of global warming and melting ice on Lisbon



Figure A: before climate change effects

Figure B: after climate change effects



APPENDIX C: Scales and Measures of Study nº1

Constructs	Items	Measurement items	References
Green Purchase Intention (GPI)	GPI1	I prefer buying environmentally friendly products.	(Mostafa, 2007a, 2007b; Taylor & Todd, 1995; Trivedi et al., 2018)
	GPI2	Buying environmentally friendly products has long-term benefits.	
	GPI3	I feel a sense of accomplishment buying eco-friendly products.	
Perceived consumer effectiveness (PCE)	PCE1	Each person's behavior can positively affect society by signing a petition to promote the environment.	(Kim, 2011; Straughan & Roberts, 1999; Trivedi et al., 2018)
	PCE2	I feel capable of helping solve environmental problems.	
Perception of environmental conservation benefits accruing in the present (NTD)	NTD1	My current everyday quality of life is associated with environmental conservation.	(Paswan et al., 2017)
	NTD2	My current everyday lifestyle is associated with environmental conservation.	
	NTD3	Healthy Living in the present is associated with environmental conservation	
	NTD4	My current everyday activities are associated with environmental conservation	
	NTD5	Many things I currently value are associated with environmental conservation	
Perception of environmental conservation benefits accruing in future (FTD)	FTD1	The future of humanity is associated with environmental conservation.	(Paswan et al., 2017)
	FTD2	The future of my children is associated with environmental conservation.	
	FTD3	The future of my lifestyle is associated with environmental conservation.	
	FTD4	The future of my quality of life is associated with environmental conservation.	
	FTD5	Healthy Living in the future is associated with environmental conservation.	

All the scale items used in this study were measured on a seven-point Likert-type scale ranging from “strongly disagree (1)” to “strongly agree (7).”

