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Ecolabels and the Attitude–Behavior Relationship towards Green Product Purchase: A Multiple Mediation Model

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Abstract: Ecolabels are regarded as an exceptional marketing and advertising tool that informs contemporary consumers about the green traits of a product. They provide information that motivates consumers to exhibit a positive attitude and actual behavior towards a green product purchase. Despite the growing interest in the relationship between green attitude and the corresponding green purchase behavior, studies that investigate the influence of ecolabel features on this relationship are rather scarce. In the present study, a survey carried out in Greece with a sample of 571 participants, examined the direct and indirect effects of ecolabel credibility and ecolabel involvement on attitude and actual behavior about green product purchase. A multiple mediation model about green purchase behavior was developed. Results highlighted the crucial role of ecolabel credibility that positively influences attitude towards green product purchase as well as ecolabel involvement. Moreover, emphasis was given on the concepts of attitude towards green product purchase and ecolabel involvement that proved to be significant mediators of this model. Findings can provide useful guidance to green marketers so that they can generate effective strategies based of ecolabels and favor a positive attitude towards green product purchase that ultimately will enhance green product purchase behavior.

Keywords: green marketing; ecolabel credibility; ecolabel involvement; attitude towards green product purchase; green product purchase behavior; multiple mediation model



Citation: Riskos, K.; Dekoulou, P.; Mylonas, N.; Tsourvakas, G. Ecolabels and the Attitude–Behavior Relationship towards Green Product Purchase: A Multiple Mediation Model. *Sustainability* **2021**, *13*, 6867. <https://doi.org/10.3390/su13126867>

Academic Editor: Iris Vermeir

Received: 16 May 2021
Accepted: 15 June 2021
Published: 17 June 2021

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1. Introduction

Society's growing concerns about the environment have led to the emergence of a new type of consumer whose buying behavior exhibits environmental sensitivity [1]. Modern consumers seem to be increasingly concerned about the eventual negative impact of their buying decisions, which in turn affects their purchasing behavior [2]. Ecolabels can be regarded as a crucial green marketing and advertising tool that is widely used to provide consumers with knowledge about the green aspects of the product [3]. Since consumers cannot verify the characteristics of green products directly, they need to rely of ecolabels to authenticate such claims. Ecolabels boost sustainable behavior without jeopardizing consumer freedom of choice, they reduce uncertainty and information search costs, while in parallel, they make it more possible that consumers will actually use this information [4].

However, sometimes producers do not provide complete, credible, and easy-to-understand ecolabel information [5,6]; this can cause a lack of transparency [7] and discourage consumers from buying green products [8]. Thus, they put ecolabel credibility under doubt [9]. This controversial condition brings out the crucial role of ecolabel credibility in green marketing and consumer research. Even though a number of academic studies has highlighted the critical role of ecolabel credibility on green consumer behavior, mainly theoretically (e.g., [10–13]), there is a gap in the marketing literature about the effectiveness of ecolabel credibility from an empirical point of view. The present study tries to fill this gap.

It is highly supported that if marketers wish to encourage consumer green purchase behavior, they have to deeply comprehend the determinant factors of this green behavior [14]. In this context, the Theory of Planned Behavior (TPB) has been widely used in green marketing as a framework to study how consumers' beliefs, attitudes, and intentions predict green purchase behavior (e.g., [2,15–17]). Despite the fact that TPB can considerably predict purchase behavior based on consumer attitude and intention, a gap between attitude and actual green purchase behavior is detected in a variety of green marketing studies (e.g., [18,19]). This thread of research has solidified the notion of a green gap, highlighting the significance of studying whether consumer attitudes and beliefs correspond to actual green purchase behavior in various settings [20].

Prior studies support that the impact of attitude on green purchase behavior may be context specific [21,22]. Consumer attitude may predict actual behavior only when contextual requirements are met [23]. For instance, consumer knowledge may be a critical factor that signifies the influence of consumer green attitude on green purchase behavior [24]. However, to the best of the authors' knowledge, research about the influence of ecolabels on the relationship between green attitude and purchase behavior is limited (e.g., [2,15]), while no prior research has studied the impact of ecolabel credibility in this context. The present study aims to fill this void by investigating the impact of ecolabel credibility on consumer attitude and actual behavior about green product purchase.

Green marketing literature states that attitude towards green product purchase can positively influence green product purchase behavior, not only directly, but also indirectly, through other factors and contextual conditions [2,25–27]. For instance, the study of Graham and Laska [28] concluded that the relationship between attitude towards healthy eating and actual healthy eating behavior is mediated by paying attention to the product nutrition label and as a result consumer involvement with it. However, this mediation effect has not been substantially corroborated in the green consumer behavior literature and has not been validated in terms of ecolabel involvement. The present study fills this gap by investigating the mediating role of ecolabel involvement in the relationship between attitude towards green product purchase and green product purchase behavior.

This survey, carried out in Greece with a sample of 571 participants, examines the direct and indirect effects of ecolabel credibility and ecolabel involvement on attitude and actual behavior towards green product purchase. A multiple mediation model was developed. Results point out the crucial role of ecolabel credibility that positively impacts upon attitude towards green product purchase as well as ecolabel involvement. The TPB [29] was employed as a framework to explicate the positive relationship between attitude towards green product purchase and the actual green product purchase behavior. Results reveal that this direct relationship is also mediated by ecolabel involvement. Hence, the present model contributes to the thread of green marketing by supporting that the relationship between attitude and behavior is complicated and mediated by multiple factors (e.g., [25–27]). Finally, the model proposes that the relationship between ecolabel credibility and green product purchase behavior is sequentially mediated by attitude towards green product purchase and ecolabel involvement (Figure 1). Based on a thorough search of the relevant literature, this is the first study that proposes a structural, two-step sequential, mediation model about green purchase behavior. This model can be effectively applied in the contemporary green market. The present model responds to the study of Taufique et al. [13], who request marketing academics to examine the impact of ecolabels on green attitude–behavior relationship. Finally, this work provides useful information to green marketers about the significance of ecolabels and favorable consumer attitude towards green product purchase that can boost green purchase behavior.

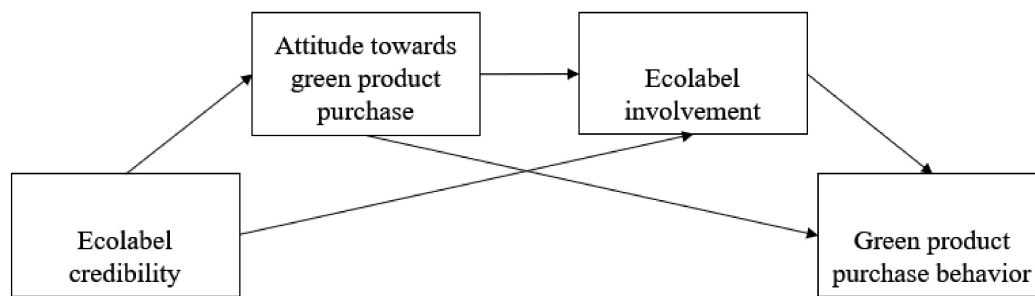


Figure 1. The conceptual model of the study.

2. Literature Review

2.1. The Attitude–Behavior Relationship

Sustainability as a concept is widely influenced by numerous factors, which in turn affect consumer purchase behavior [30,31]. The study of attitude–behavior relationship can be regarded as a tool that helps both practitioners and researchers to predict consumer behavior [32]. An attitude can be defined as “an enduring set of beliefs about an object that predisposes people to behave in particular way toward the object” [33] (p. 257). Attitudes significantly affect someone’s behavioral model as well as her/his choices [34]. A positive attitude towards a green product purchase can be seen as a starting point for sustainable consumption and particularly for a positive green product purchase behavior. In a major study, Hines et al. [35] reviewed 128 environmental behavior studies and found that there is significant relationship between attitudes towards the environment and their corresponding behavior.

The relationship between attitude and behavior can be effectively explained based on the TPB [29]. TPB supports that green consumer behavior can be interpreted by behavioral intention, which in turn is explained by attitudes, perceived behavioral control, subjective norms, and social norms. TPB has been implemented in various green consumer areas like food consumption [16], recycling [36], and generic green consumption [17]. Based on TPB, consumer values play a central role in the attitude–behavior relationship. Values are defined as personal beliefs about a particular mode of conduct that are morally or personally preferred and can influence a person’s attitudes and behavior [37]. According to Homer and Kahle [38] and their VAB model, the causal relationship between value, attitude, and behavior can be perceived as value → attitude → behavior. The authors empirically supported this model based on consumer purchase behavior about ecological food, while since then, this model has been empirically tested within the contexts of consumer recycling behavior [39], wildland maintenance [40], consumer choice for healthy food [41], and consumer green purchase behavior [15].

However, it is worth mentioning that sometimes consumers are confused about manifesting their attitudes and intentions into actual purchase behavior about green products. The gap between environmental attitudes and green product purchase behavior is a well-known challenge for green marketers. This attitude–behavior gap explains the phenomenon where consumers’ actual choices and actions are not matched with their expressed preferences or attitudes to participate in pro-environmental behavior [18,19]. The attitude behavior gap can be explained by various factors like lack of knowledge, social norms, or situational factors [42]. In addition, there is evidence that individual factors like demographics and lifestyle increase the inconsistency gap between attitude and behavior [43]. In this context, it is worth noting that green product purchase behavior is impacted by demographic factors [10]. Age, gender, educational level, occupation, and marital status significantly affect buying behavior towards green products [44]. For instance, educated consumers are more likely to trust ecolabels and purchase green products [45].

2.2. Ecolabels

An ecolabel is a tool that is used by companies or governmental authorities with the goal to raise awareness about the environmental quality of a product [13]. The Global Ecolabelling Network [46] supports that an ecolabel “identifies products or services proven to be environmentally preferable within a specific category”. The International Standards Organization (ISO) [47] defines ecolabels as the labels that “provide information about a product or service in terms of its overall environmental benefits, such as the recyclability of its packaging, or the absence of noxious ingredients”. Ecolabels can be regarded as a significant emerging trend in green marketing and green advertising [8] as well as a marketing tool providing consumers information and promoting green products [48,49]. They can be considered as certification marks that inform consumers about the environmental qualities of products/services and assure them of the truthfulness of these claims [8]. Ecolabels enhance transparency and consumer trust towards environmental claims [50,51]. Ecolabeling improves consumer perception about a brand in the name of ecological concern and green marketing [11,13]. Finally, ecolabels are positively associated with enhanced consumer preference, increased purchase behavior, and greater appreciation for ecolabeled products [52–55].

Policy actions and regulations are also considered effective mechanisms to firms in order to adopt eco-friendly innovation generally and ecolabels specifically, due to the public grants and the favorable taxation provided to them [56]. In this vein, there is an increasing skepticism at the global level towards the claims of ecolabels [6,10]. Sometimes ecolabels are used inappropriately by companies. The misuse of ecolabels can cause “greenwashing”, meaning that although a company claims to provide eco-friendly products, in reality their actions are detrimental to the environment [3]. Prior studies (e.g., [6,57]) highlight that consumers are afraid of being frauded by companies that promote a “green” profile. Given that the number of ecolabels globally exceeds 465 [58], and each one may communicate a distinct sort of information [59], the comprehension of ecolabels is difficult [60,61]. Lack of awareness among consumers, lack of trust of certification agencies, fake ecolabels, and lack of monitoring institutions are regarded as the critical factors impacting the credibility of ecolabels [62].

2.3. Ecolabel Credibility

Ecolabel credibility or believability considerably influences the process of product evaluation [63]. All types of ecolabels must be credible and vigorous [11]. Ecolabels boost sales and enhance product image only if consumers identify them as credible [6,12]. Credible ecolabels signal the superiority of the product when compared with non-labeled products [64], while at the same time they guarantee the sustainable management of the production chain [11]. Ecolabel credibility positively influences consumer preferences and willingness to pay [65,66].

Consumer credibility towards green products is a focal issue of environmental consumption and green product claims, because such claims are subjected to the classification of credence claims [8]. While some product characteristics can be confirmed through personal experience or information seeking, credence claims, such as ecolabels, must be acknowledged as credible and trustworthy with limited capacity of personal assessment [67]. As a result, based on narrow evidence, consumers have to decide whether they will accept or not these claims. Signaling theory can explain the mechanism that helps ecolabels to be considered as credible information sources and be accepted by consumers [68]. Signaling theory states that consumers face an information asymmetry compared to sellers, and as a result they are required to evaluate products based on deficient information [8]. In this context, they rely on signals or cues in order to assess product quality [69]. Effective signals are those that offer both utility and credibility to consumers [70]. Ecolabels can be considered as signals that offer consumers a certain degree of utility, trust, and credibility [63]; however, such trust and credibility largely depend on the source of the ecolabel [71]. Perceived

credibility is a crucial dimension of consumer trust [72] and is rather critical in the case of green products that are viewed with suspicion by consumers [73].

Knowledge plays a critical role in the effective utilization of ecolabels, since it enables consumers to realize the purpose and benefits of green products. For instance, only a small number of consumers is inclined to use a new ecolabeled product without having confirmed (or believing) that other consumers have successfully approved its utility [51]. Knowledge is defined as the amount of information that someone holds in memory and can influence the way that she/he decodes certain preferences [74]. Consumer knowledge of ecolabels is regarded as a primary factor in the evaluation of product credibility [11]. Relevant knowledge about ecolabels is vital for typical adopters to consider an ecolabel as credible. Being well informed and having deep knowledge about the attributes of green products could highly encourage individuals to choose these products [75,76]. Organizations are increasingly providing detailed environmental externally validated information that enhance credibility. Consumers utilize labels in decision-making only if they understand and trust the message conveyed by ecolabels [13]. Specificity of information and further additionally detailed evidence enhance the perceived credibility of the ecolabel [77]. However, information overload may function as a barrier to consumer involvement with the ecolabel [51,78]. Even in cases where consumers are aware of an ecolabel, trust it, and regard it as credible, information overload may inhibit them from paying attention to this ecolabel [79].

2.4. Ecolabel Involvement

According to Laczniak et al. [80], the concept of involvement is comprised of two components: (1) attention to the stimulus (e.g., the ecolabel), and (2) increased focus on elaborating the stimulus (e.g., the ecolabel). Moreover, the literature supports that consumer involvement can be also classified into two categories [81–84]. The first one is enduring involvement, which is referred to as the product category of involvement, while the second one is situational involvement, which is context specific and accordingly short-term in nature. The present study investigates the concept of involvement within the scope of ecolabels as communication tools. Thus, this study considers the latter classification of involvement that gives emphasis on attention and comprehension of information provided by ecolabels.

Ecolabels can be regarded as useful communication tools for environmental policy only if consumers take them into consideration during the purchase decision process [85]. Consumers are selective about the information they use in the decision-making process, and for this reason all stimuli that are attended are filtered and sorted so that only a 2% field of view is utilized in this process [86]. Ecolabel perception and understanding are influenced by the level of consumer involvement with them [11]. Higher levels of involvement lead to increased attention to stimuli [87], increased message comprehension [82], and quick reactions to stimuli [88]. Highly-involved consumers more frequently review the whole message content compared to peripheral cues on a product evaluation process [89,90]. Increased levels of attention lead to higher levels of message elaboration, a state where consumers are able to associate the message with the product more effectively [87]. In this vein, highly involved consumers focus more on stimuli and create beliefs about a product based on these stimuli [91].

In many cases, the consumer decision process does not include extended information search or assessment of alternative options; instead, buying decisions are usually mundane and involve substantially less cognitive action [84]. Consumers get involved with ecolabels when they are inclined towards pro-environmental behaviors focusing on protecting the environment [51,78]. Green consumers purchase eco-friendly products because they care about the environment and not because it is a fashionable behavior [92]. Environmentally concerned consumers believe that environmental protection can be achieved by buying environmentally friendly products [93] and regard the ecolabel information as valuable for this purpose [94]. It is worth mentioning that the relationship between pro-

environmental behavior and attention to ecolabels is enhanced when consumers express trust of ecolabels [78].

The level of consumer involvement in ecolabels is equivalent and depends on the level of involvement with the entire product [95]. Particularly, in low-involvement product cases, consumers are less motivated to engage in marketing communication messages like ecolabels, while in high-involvement scenarios, consumers will evidently engage with the ecolabel. Moreover, consumer involvement in ecolabels occurs in product categories that have been placed in consumer minds as products followed by ecolabels [78]. For example, washing machines or olive oil can be regarded as product categories that very often are accompanied by various ecolabels. In such cases, paying attention to ecolabels is definitely part of a regular sequence, followed by environmentally concerned consumers, who aim to buy the most environmentally friendly product within the consideration of all alternatives.

3. Hypotheses Development and Conceptual Model

3.1. *The Impact of Ecolabel Credibility on Ecolabel Involvement and the Mediating Role of Attitude towards Green Product Purchase*

Green consumers are influenced by marketing information sources like advertising, product packaging, or ecolabeling [2,24,76]. Ecolabel knowledge is positively related to ecolabel credibility [11]. The more knowledgeable a consumer is about an ecolabel, the more possible it is that she/he pays attention and gets involved with it [51]. Green product knowledge leads consumers to cognitive situations [96], such as ecolabel attention and involvement. Knowledge and trust of ecolabels play a primary role in consumer behavior, given that they strengthen the impact of ecolabels on green behavior [75,96]. Consumers may use ecolabels only if they trust them and believe that they are credible [9]. Thus, consumers' information and knowledge about the credibility and believability of ecolabels will positively influence their cognition. Considering an ecolabel as trusted or credible can positively impact the degree to which a consumer may get involved with it [78]. Personal beliefs, trust, knowledge, and credibility on ecolabeled products are motivating factors for paying attention and get involved with an ecolabel during a purchase process [78]. Hence, the first hypothesis supports the following:

Hypothesis 1 (H1). *Ecolabel credibility positively influences ecolabel involvement.*

In order to successfully utilize the ecolabeling concept, organizations are expected to strengthen consumer trust [97]. Attitude towards green products is strongly based on trust and credibility, and these concepts can be better guaranteed by ecolabels [49]. Organizations are required to provide consumers with complete and credible information, so that the latter can clearly distinguish between green attributes and greenwashed products [5,98]; this could improve both consumers' trust and attitude towards green products [7]. More detailed and clear messages better satisfy consumer information needs and positively influence consumer attitude [2]. Therefore, consumers' understanding of ecolabel claims could significantly strengthen their credibility and believability of these claims and could help them develop positive associations with eco-friendly brands, which in turn affects their attitude towards green products.

Attitude can be defined as an individual tendency to carry out an action towards an object or an idea and can be influenced by information, beliefs, values, perceptions, and experience [34]. In this vein, knowledge about green product characteristics significantly affects consumer green attitudes [24]. In order for consumers to develop positive attitudes towards green products and exhibit ecologically responsible buying behavior, they require credible product environmental information. It is worth noting that context-specific knowledge, like knowledge about ecolabel credibility, is more valued and crucial in the decision-making process than generalized knowledge [49]. Indeed, consumer knowledge about ecolabels strongly influences attitude towards green products [12]. Based on signaling theory, ecolabels are used to verify product credibility, and by doing so, they enhance consumer attitudes about the product [68]. Hence, consumer credibility about ecolabels

will positively influence attitude towards green product purchase. The second hypothesis proposes the following:

Hypothesis 2 (H2). *Ecolabel credibility positively influences attitude towards green product purchase.*

Consumers that have adopted a more ecologically conscious lifestyle are more likely to buy green products [99]. Studies support that consumers get involved with ecolabels when they are inclined towards pro-environmental behaviors [51,78]. This means that in order for consumers to get involved with ecolabeled products, they should have built a positive attitude towards environmental issues. Attitudes highly determine which green product information they are going to take into account and pay attention to [100]. Fazio [101] contends that attitudes influence consumer behavior through selective attention towards objects that are coherent with this attitude. In this vein, Stone [102] introduces the notion of attitudinal involvement, which can be defined as the concept that consists of various attitudes that mirror the very nature of a person and incite her/him to get involved with an object. Consumers with positive attitude towards green product purchase manifest the highest involvement level with the product [16]. This provides evidence that consumer attitudes towards a green product purchase will positively influence consumer ecolabel involvement. The more a concept or idea becomes an integral part of a consumer's values, the higher the degree of involvement with a product she/he is going to manifest [103]. Consumers that demonstrate positive attitude towards environmental policies and ecolabeling tend to pay more attention to ecolabels and get involved with them [104]. In this context, the magnitude of this influence largely depends on the level of knowledge about the object [101]. Again, this claim permits the authors to support that knowledge about ecolabel credibility will positively affect attitude towards green product purchase, which in turn positively influences ecolabel involvement. Based on this analysis, which develops the influence of attitude towards green product purchase on ecolabel involvement, and taking into consideration the analysis of the previous hypothesis (H2) about the impact of ecolabel credibility on attitude towards green product purchase, the authors propose the following hypotheses:

Hypothesis 3a (H3a). *Attitude towards green product purchase positively influences ecolabel involvement.*

Hypothesis 3b (H3b). *Attitude towards green product purchase mediates the relationship between ecolabel credibility and ecolabel involvement.*

3.2. *The Mediating Role of Attitude towards Green Product Purchase in the Relationship between Ecolabel Credibility and Green Product Purchase Behavior*

Studies on green marketing support that attitude is considered a mediator construct between environmental knowledge and behavior [2,24]. For instance, the study of McEachern and Warnaby [105] supports that ecolabel knowledge positively influences purchase behavior of biological labeled meat, mediated by consumer attitudes towards animal health. Knowledge is regarded as an integral part of attitude [106]. Consumer knowledge of ecolabels constitutes a critical precondition for product credibility [11]. In this context, the vague concept of knowledge about product environmental issues can be reflected in terms of consumers' perceived credibility that is provided by ecolabels. Consumer familiar with environmental issues are well-informed about ecolabel function and credibility. The above analysis brings about the assumption that consumer attitude towards green product purchase mediates the relationship between ecolabel credibility and consumer green behavior.

The VAB model proposes that the causal relationship between value, attitude, and behavior can be perceived as value → attitude → behavior [38]. Based on this model, ecolabel credibility can be considered as a consumer value, given that values are defined as personal beliefs about a particular mode of conduct. This means that a consumer aware of

the value of green and sustainable consumption perceives ecolabels as credible information sources. Roberts [107] supports that in order to clearly comprehend pro-environmental behavior, such as green product purchase behavior, green marketers have to study their antecedent variables of this construct. Based on the TPB, attitude is considered as an antecedent variable of behavior [29]. This provides evidence that attitude towards green product purchase can be seen as an antecedent variable of green product purchase behavior. Moreover, attitudes are influenced by values and beliefs [34], making it possible to propose that ecolabel credibility positively impacts upon attitude towards green product purchase, which in turn significantly affects green product purchase behavior. Likewise, according to the knowledge–attitude–behavior model, green product attitudes can be regarded as mediators in the relationship between knowledge about environmental topics and consumer behavior [108,109]. The model confirms the mediating role of attitude towards green product purchase in the relationship between ecolabel credibility and green product purchase behavior. In this vein, Taufique et al. [2] argue that only in cases where consumers believe that ecolabel information is credible, is the sequential influence of knowledge about ecolabels on attitude towards environmental issues and then on green product purchase behavior statistically significant. The following hypotheses are therefore proposed:

Hypothesis 4a (H4a). *Attitude towards green product purchase positively influences green product purchase behavior.*

Hypothesis 4b (H4b). *Attitude towards green product purchase mediates the relationship between ecolabel credibility and green product purchase behavior.*

3.3. The Mediating Role of Ecolabel Involvement in the Relationship between Attitude towards Green Product Purchase and Green Product Purchase Behavior

Even though the prior literature in green marketing supports that both attitude towards green product purchase and ecolabel involvement are positively associated with green product purchase behavior, their joint influence is not well-comprehended. Prior green marketing studies confirm the relationship between consumer green attitudes and green behaviors [110,111].

Westaby [112] and Claudy et al. [18] support that green consumers decide how to form green behaviors through high levels of cognitive processing, such as ecolabel involvement. Green consumers evaluate ecolabeled products as superior, while at the same time they express a greater willingness to pay for them compared to non-labeled products [53,54,113]. Ecolabels have proved helpful for green consumers when they make their buying decisions [114]; the majority of consumers take ecolabels into account when they purchase goods [60]. Involvement as a concept comprises a particular factor of motivation. Consumer involvement with environmental issues enhances green behavior [20]. In highly involved situations, consumers invest cognitive effort during a buying decision making process [115]. As a result, involvement positively influences consumer buying behavior [116]. Ecolabel involvement, within the context of consumers' paying attention to ecolabels, is a critical stage that leads to buying behavior of a green product [78].

Involvement with green products positively influences consumer intention to buy this product and enhances ethical food consumption [16]. In particular, the study of Vermeir and Verbeke [16] highlights that involvement can be regarded as a significant factor that addresses the gap between attitude and intention about green consumption. Overall, about 30% of consumers pay attention to product packaging and its features like ecolabels, the origin of the product, or the presence/absence of genetically modified organisms and very often buy ecological products [117]. A recent survey, studying the attitude–behavior relationship in energy use, supports that consumers who pay particular attention to a product's energy efficient indicators (such as ecolabels) and get involved with them, manifest enhanced product buying behavior [19]. Thus, the following hypothesis is proposed:

Hypothesis 5 (H5). *Ecolabel involvement positively influences green product purchase behavior.*

The TPB proposes that attitudes towards green product purchase positively influence green product purchase behavior both directly or indirectly, mediated by other factors and contextual conditions [2,25]. For instance, when consumers pay attention to energy efficient indicators, like ecolabels, the attitude behavior gap closes, and an attitude–behavior consistency is noticed about green purchase behavior [19]. This means that various attractive factors can modify this gap [118]. Jung et al. [119] highlight that in some cases, consumers may change their opinion about buying a green product, even in front of the shelves and during the purchase process. Lack of environmental information about a green product can be considered as a factor that might explain the difference between green attitude and behavior [120,121]. Thus, paying attention to ecolabels and getting involved with them during the purchase process may be a crucial factor that addresses the gap between attitude towards green product purchase and actual green product purchase behavior.

Consumers' attitudes positively affect their cognitive actions (like attention to ecolabel and involvement), which in turn impact purchase behavior [62,122]. A study about the impact of nutrition label in the relationship between attitude towards healthy eating and actual healthy eating behavior supports that nutrition label use, in terms of paying attention to the label, reading it, and finally getting involved with it, partially mediates the relationship between attitude towards healthy eating and actual healthy eating behavior [28]. Based on this, it can be inferred that a positive attitude towards green product purchase will positively influence ecolabel involvement, which in turn will impact upon green product purchase behavior. Finally, taking into consideration the previous analysis of the H3b, about the impact of attitude towards green product purchase on ecolabel involvement, as well as the analysis of the H5, about the positive influence of ecolabel involvement on green product purchase, the following hypothesis is set under investigation:

Hypothesis 6 (H6). *Ecolabel involvement mediates the relationship between attitude towards green product purchase and green product purchase behavior.*

Finally, based on the whole of the above analysis of this research hypotheses section, it is theorized that ecolabel credibility is positively related to ecolabel involvement through attitude towards green product purchase (H3b), and that ecolabel involvement serves as a mediator in the relationship between attitude towards green product purchase and green product purchase behavior (H6). Combining the above hypotheses with the proposition of the TPB that there is a mediation effect of attitude in the relationship between knowledge/beliefs and behavior [29,38], we propose a three-path mediation model. Hence the following hypothesis is advanced:

Hypothesis 7 (H7). *The relationship between ecolabel credibility and green product purchase behavior is sequentially mediated by attitude towards green product purchase and ecolabel involvement.*

4. Research Method

4.1. Procedure

A survey was conducted in Greece to test the above hypotheses. Liobikienė et al. [123] support that most studies about green consumer purchase behavior have been conducted in developing countries like India, Malaysia, or Taiwan, while in the EU there is a lack of relevant studies. Under this logic, Greece constitutes a substantial choice to run this survey. A structured questionnaire was developed to collect data. This questionnaire was translated by an expert bilingual scholar from the English to Greek language, and that was back-translated by another bilingual researcher from Greek to English in order to achieve a reliable translation. A convenience sample of 571 was gathered.

The questionnaire was targeted to consumers of various supermarkets/hypermarkets and local markets in the four big urban centers in Greece, namely Athens, Thessaloniki,

Patras, and Larissa, based on Taufique et al.'s [2] sampling design that collected data from the biggest cities in Malaysia. Considering the need to collect data from these areas, an online version of the same questionnaire was developed to source data, and also a zip code item was included to maintain the homogeneity of our study. A total of 78 questionnaires with zip codes not related to the aforementioned areas was removed. All the potential respondents were aware of the purpose of the research and assured that their answers were anonymous in order to control ex ante for common method bias [124]. Consumers that were not aware of ecolabels did not participate in the survey.

4.2. Sample

Table 1 presents a summary of the respondents' profiles by several criteria. The mean age of participants was 35.5 years old ($SD = 14.78$), while 62.7% were female and 37.3% were male. Regarding participants' total annual income, 45.9% ranged between 0 and 5000€, 24.2% ranged between 5001 and 12,000€, 18.6% ranged between 12,001 and 20,000€, 5.3% ranged between 20,001 and 30,000€, 4% ranged between 30,001 and 40,000€, and 2.1% had a total income more than 40,001€. In terms of the participants' educational level, 1.4% finished primary school, 3.9% secondary school, and 31.8% high school; 53.6% had a bachelor's degree, 7.5% had a master's degree, and 1.8% held a Ph.D.

Table 1. Sample of the study.

	Number	Percentage (%)
Number of Respondents	571	100
Gender		
Male	213	37.3
Female	358	62.7
Age		
18–30	258	45.2
31–40	87	15.2
41–50	120	21.0
51–60	79	13.9
>60	27	4.7
Educational Level		
Primary School	8	1.4
Secondary School	22	3.9
High School	182	31.8
Bachelor's degree	306	53.6
Master's degree	43	7.5
PhD	10	1.8
Total Income		
0–5000€	262	45.9
5001–12,000€	138	24.2
12,001–20,000€	106	18.6
20,001–30,000€	30	5.3
30,001–40,000€	23	4.0
>40,001€	12	2.1
Location		
Athens	194	34
Thessaloniki	207	36.3
Patras	95	16.6
Larissa	75	13.1

4.3. Measures

All constructs were measured by multiple items, and each item was evaluated on a five-point Likert scale consisting of strongly disagree (1) to strongly agree (5), excepting attitude towards green product purchase, which was measured with the use of semantic-differential scales (see Appendix A). In particular, ecolabel credibility was measured by a four-item scale (Cronbach's $\alpha = 0.75$), adopted by Taufique et al. [13]. Ecolabel involvement

was measured by a four-item scale (Cronbach's $\alpha = 0.83$), based on Taufique et al.'s [11–13] prior studies. Attitude towards green product purchase was measured by a three-item scale (Cronbach's $\alpha = 0.76$), adopted by Chan [125]. Last, green product purchase behavior was measured by means of six-item scale (Cronbach's $\alpha = 0.84$), adopted by Picket-Bakker and Ozaki [122]. All the measures used in the survey are displayed in the Appendix A section.

5. Results

Structural equation modeling (SEM) was adopted in order to assess the research model, as it can measure all paths simultaneously, not stepwise. Thus, it is considered a more comprehensive and effective method than stepwise regression analysis [126]. In this way, the present study employed in combination the software packages SPSS 25 and AMOS 21 to analyze the data and test the hypotheses. Particularly, SPSS was used for reliability checking and demographic analysis, while AMOS was used to run model fit, as well as validity and hypotheses testing, based on SEM analysis. Based upon the guidelines provided by Anderson and Gerbing [127], the research model was assessed in two phases: measurement model and structural model.

5.1. Measurement Model

Descriptive and reliability statistics for all items and constructs are presented in Table 2. All factor loadings exceeded the cutoff point of 0.50 given by Bagozzi and Yi (1988) [128]. Cronbach's α and composite reliability (CR) for all constructs exceeded the recommended value of 0.7 [129]. Thus, internal reliability was performed. As regards convergent validity, the average variances extracted (AVE) was calculated. Despite the fact that it is common to accept AVE values above the threshold of 0.5, in our study two constructs demonstrated AVE values below this threshold. Fornell and Larcker [130] support that researchers can accept 0.40 as the threshold for AVE if all the composite reliability (CR) values are over 0.60. This rule was followed also in prior green marketing studies that tested the impact of ecolabels on purchase behavior (e.g., [55]). Thus, convergent validity of the constructs in the present study seemed satisfactory.

Table 2. Descriptive statistics and reliability tests of all items.

Constructs	Items	M	SD	Factor Loadings	AVE	CR	Cronbach's α
Ecolabel credibility	Cred_1	3.40	0.741	0.586	0.463	0.774	0.75
	Cred_2	3.87	0.723	0.730			
	Cred_3	3.78	0.759	0.662			
	Cred_4	3.54	0.790	0.734			
Ecolabel involvement	Invol_1	3.11	0.909	0.837	0.571	0.839	0.83
	Invol_2	2.88	0.904	0.853			
	Invol_3	2.94	0.950	0.578			
	Invol_4	2.67	0.944	0.723			
Attitude towards green product purchase	Attit_1	4.17	0.842	0.627	0.528	0.769	0.76
	Attit_2	4.05	0.731	0.744			
	Attit_3	3.95	0.818	0.799			
Green product purchase behavior	Purch_1	2.99	1.000	0.580	0.454	0.831	0.84
	Purch_2	3.43	1.039	0.551			
	Purch_3	3.20	0.980	0.820			
	Purch_4	3.45	0.886	0.707			
	Purch_5	3.64	0.894	0.643			
	Purch_6	3.32	0.985	0.707			

To ensure the validity of the measures, a confirmatory factor analysis (CFA) was performed to evaluate model fit. Results of CFA provided that the model determined a good fit to the data ($\chi^2/df = 2.216$, CFI = 0.966, TLI = 0.957, GFI = 0.953, RMSEA = 0.046, SRMR = 0.0428). All standardized coefficients were significant (ranging from 0.551 to 0.853). The potential influence of common method variance was assessed by conducting

Harman's test [131]. Results revealed a poor fit for the one-factor model ($\chi^2/df = 10.064$, CFI = 0.73, TLI = 0.678, GFI = 0.763, RMSEA = 0.126, SRMR = 0.0987). As a result, common method bias was not a problem for the present study. Following Fornell and Larcker's criteria [130], discriminant validity was assessed by comparing the square root of AVE with the correlations of constructs. Table 3 shows that the square roots of the AVE of each construct was greater than the correlation coefficients between constructs. Thus, discriminant validity for the present model was confirmed.

Table 3. Discriminant validity.

	Ecolabel Involvement	Ecolabel Credibility	Attitude towards Green Product Purchase	Green Product Purchase Behavior
Ecolabel involvement	0.756			
Ecolabel credibility	0.400	0.681		
Attitude towards green product purchase	0.455	0.612	0.727	
Green product purchase behavior	0.608	0.400	0.540	0.674

5.2. Structural Model and Hypotheses Testing

The structural model from the SEM analysis is presented in Figure 2, in which the explained variance of endogenous variables (R^2), the standardized path coefficients (β), and the indirect effects are indicated. A bootstrap sample of 5000 with 95% confidence intervals (CIs) was used to test all the hypotheses in the path model. Again, the path model determined a good fit to the data ($\chi^2/df = 2.954$, CFI = 0.998, TLI = 0.991, GFI = 0.997, RMSEA = 0.059, SRMR = 0.009). All research hypotheses were supported, as shown in Table 4 and Figure 2.

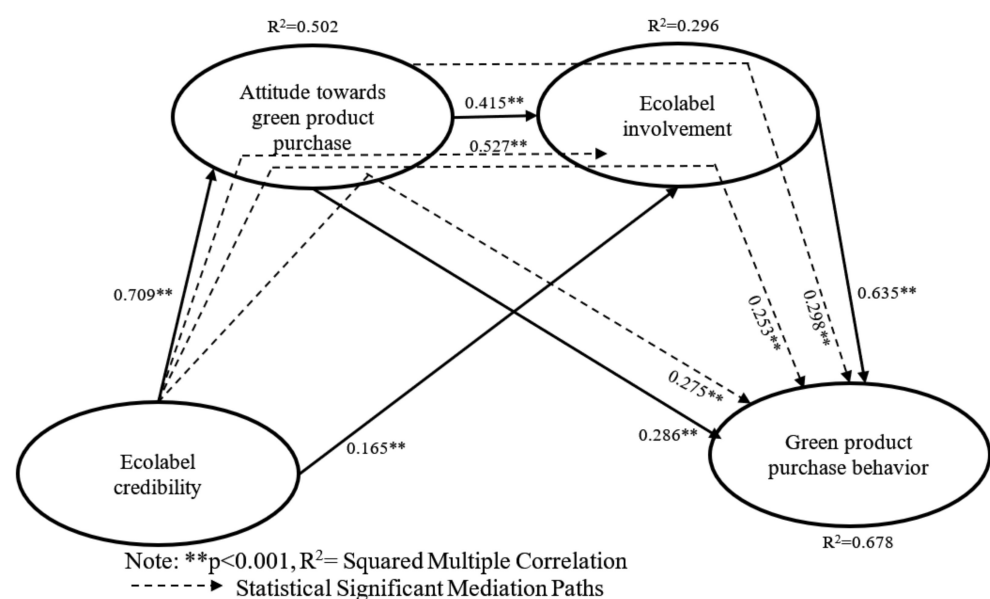


Figure 2. The structural equation model of the study.

Table 4. SEM results.

Direct Effects	Direct Effect	S.E.	Sig.			Hypothesis	
Ecolabel cred. → Ecolabel involv.	0.165	0.089	$p < 0.001$			H1	Supported
Ecolabel cred. → Attit.	0.709	0.296	$p < 0.001$			H2	Supported
Attit. → Ecolabel involv.	0.415	0.074	$p < 0.001$			H3a	Supported
Attit. → Purch. Behav.	0.286	0.021	$p < 0.001$			H4a	Supported
Ecolabel involv. → Purch. Behav.	0.635	0.032	$p < 0.001$			H5	Supported
Mediation paths	Bootstrap 95% Confidence						
	Indirect Effect	S.E.	BootLLCI	BootULCI	Sig.	Hypothesis	
Ecolabel cred. → Attit. → Ecolabel involv.	0.527	0.077	0.386	0.686	$p < 0.001$	H3b	Supported
Ecolabel cred. → Attit. → Purch. Behav.	0.275	0.035	0.207	0.344	$p < 0.001$	H4b	Supported
Attit. → Ecolabel involv. → Purch. Behav.	0.298	0.045	0.212	0.388	$p < 0.001$	H6	Supported
Ecolabel cred. → Attit. → Ecolabel involv. → Purch. Behav.	0.253	0.040	0.179	0.338	$p < 0.001$	H7	Supported

In particular, results revealed that ecolabel credibility positively affects ecolabel involvement ($\beta = 0.165, p < 0.001$). Hence, H1 was supported. Likewise, ecolabel credibility positively affects attitude towards green product purchase ($\beta = 0.709, p < 0.001$), supporting H2. In the same manner, all the remaining direct relationships were supported: attitude towards green product purchase positively impacts upon ecolabel involvement (H3a: $\beta = 0.415, p < 0.001$); attitude towards green product purchase positively affects green product purchase behavior (H4a: $\beta = 0.286, p < 0.001$); and ecolabel involvement is positively related to green product purchase behavior (H5: $\beta = 0.635, p < 0.001$).

With reference to the mediation analysis, we followed the bootstrapping method proposed by Preacher and Hayes [132,133]. As previously mentioned, a bootstrap sample of 5000 with 95% confidence intervals (CIs) was used to test the mediation hypotheses. If the 95% of the bias-corrected confidence intervals for the estimates of the mediation effect does not include zero, the mediation effect is statistically significant at the 0.05 level [134]. Again, results revealed that all mediation hypotheses were supported. Specifically, attitude towards green product purchase mediates the relationship between ecolabel credibility and ecolabel involvement, supporting H3b (given that the bias-corrected confidence intervals of the specific indirect effect did not include zero; between 0.386 and 0.686). Attitude towards green product purchase mediates the relationship between ecolabel credibility and green product purchase behavior (bias-corrected confidence intervals between 0.207 and 0.344), confirming H4b. Similarly, ecolabel involvement mediates the relationship between attitude towards green product purchase and green product purchase behavior (bias-corrected confidence intervals between 0.212 and 0.388), supporting H6. Finally, the current results corroborated H7, which proposed the multiple mediation model in which the relationship between ecolabel credibility and green product purchase behavior is sequentially mediated by attitude towards green product purchase and ecolabel involvement (bias-corrected confidence intervals between 0.179 and 0.338).

6. Discussion

The present study investigated the direct and indirect effects of ecolabel credibility and ecolabel involvement on attitude towards green product purchase and green product purchase behavior. A sample of 571 participants took part in the current survey. The study aimed to examine the impact of ecolabels in the relationship between attitude and

actual behavior about green product purchase (see Taufique et al. [13]) and build a multiple mediation model.

6.1. Research Implications

The current work contributes to the literature on green marketing and consumer behavior in the following fundamental ways. First, despite the fact that green attitudes and green purchase behavior are constantly studied in green marketing, most studies focus on the concepts of attitude towards environment (e.g., [2,15,55,135]) or attitude towards green products in general (e.g., [119,136]). In the present work, we intended to focus on a less studied type of green attitude, which absolutely matches to the same concept of purchase behavior, namely attitude towards green product purchase and green product purchase behavior. Our results revealed that there is no gap between these two concepts, contrary to prior studies that mentioned a green attitude–behavior asymmetry [18,19]. A potential explanation is that the two terms address the same kind of behavior (green product purchase). According to Ajzen and Fishbein [21], if researchers want to accurately understand and clearly reveal the relationship between attitude and behavior, they have to study the attitude towards a specific behavior and not towards a broader practice, like attitude towards the environment. Drawing upon Best and Kneip’s analysis [22], our study offers a specific context in which consumer attitude can significantly predict consumer purchase behavior about green products.

Even though ecolabels are exponentially studied from a marketing point of view, most studies concentrate on the concept of ecolabels in general or investigate ecolabels within the scope of ecolabel knowledge or ecolabel trust (e.g., [2,15,55]). The present research contributes to the green marketing literature by examining two less investigated concepts, namely ecolabel credibility and ecolabel involvement. Results reveal that these notions respond appropriately to the contemporary green market. They proved to be significant factors that positively influence attitude towards green product purchase and green product purchase behavior, by developing a new causal model that illustrates multiple mediation effects among the four variables. This causal model also reveals that ecolabel credibility can be regarded as an antecedent variable of ecolabel involvement. When consumers believe that ecolabels are credible sources of green information, they pay attention to them, and as a result they get involved with product ecolabels. This is in line with prior research supporting that consumer knowledge and beliefs, like ecolabel credibility, positively impact upon consumer cognition (e.g., [96]).

This study reveals that attitude towards green product purchase significantly mediates the relationship between ecolabel credibility and ecolabel involvement. This major finding provides a crucial mechanism through which consumer knowledge and beliefs lead to a cognitive situation, this of involvement with product ecolabels. This relationship is mediated by the condition where consumers are inclined towards environmentally friendly behaviors, like forming a positive attitude towards green product purchase, that ultimately leads to paying attention to ecolabels and getting involved with them [51,78]. The present mediation effect corroborates the work of Stone [102], who supports that an individual’s attitudes mirror the very nature of himself/herself, which incite him/her to get involved with an object. In the context of green consumer behavior, this mechanism can be initiated by consumer’s credibility of ecolabels that positively impacts upon attitude towards green product purchase, which in turn significantly influences ecolabel involvement. Thus, starting with the belief that ecolabels are credible, the more a relevant concept becomes an integral part of a consumer’s values, like eco-friendly values that can be seen in terms of positive attitude towards green product purchase, the higher the degree of involvement with a product [103] or its ecolabel.

In the same vein, this work proves that attitude towards green product purchase mediates the relationship between ecolabel credibility and green purchase behavior. This result is in line with previous studies on green marketing, supporting that attitude can be regarded as a mediator construct between environmental knowledge and behavior [2,24].

As was already mentioned, ecolabel knowledge is a concept that guarantees ecolabel credibility [11]. Moreover, this mediation mechanism verified the VAB model [38] that is based on the TPB [29]. The VAB model can be illustrated as value → attitude → behavior. In our case, ecolabel credibility is regarded as a consumer value that positively impacts upon consumer attitude towards green product purchase, which in turn significantly influences the corresponding behavior. It is worth to note that despite the fact that previous studies support the positive and significant impact of ecolabel credibility on green purchase behavior [137,138], our model does not support such a relationship. This happens because attitude towards green product purchase fully mediates the aforementioned connection. When the path between attitude towards green product purchase and green product purchase behavior is erased from the SEM model and simultaneously the path between ecolabel credibility and green product purchase behavior is added, this relationship is positive and statistically significant ($\beta = 0.132, p < 0.001$). Thus, it can be inferred that consumers who believe that ecolabels are credible sources of green product information express a greater green product purchase behavior because they already have a positive attitude towards such an action. This fact highlights the crucial role of green attitudes in the whole process of green purchase behavior.

A significant contribution of this research is the mediating role of ecolabel involvement in the relationship between attitude towards green product purchase and green product purchase behavior. This is in line with the study of Graham and Laska [28], who support that the relationship between attitude towards healthy eating and actual healthy eating behavior is mediated by paying attention to product nutrition labels. Thus, ecolabel involvement is a critical stage that leads to buying behavior of a green product [78]. To the best of the authors' knowledge, this is the first study that clearly illustrates that the relationship between a green attitude and a corresponding behavior is mediated by an ecolabel concept, this of ecolabel involvement. The present mediation effect explains that when consumers have a favorable attitude towards green product purchase, they are willing to take into account ecolabel information and get involved with it before they purchase it. The present result may support the recent study of Jung et al. [119], who argue that in some conditions, consumers change their opinions about purchasing a green product, even in front of the shelves and during the purchase process. In most cases, consumers get involved with ecolabels when they get in physical touch with the product and its packaging, and this can happen in front of the shelves or during the brick and mortar purchase process. Thus, our study brings out the significant role of ecolabel involvement in the green purchase process for consumers that are inclined towards pro-environmental behavior. This type of consumer really wants to obtain information about the green characteristics of the product before she/he buys it, and as a result she/he uses ecolabels as a substantial source of information with which she/he gets involved.

6.2. Managerial Implications

Our study offers a two-step sequential mediation model that illustrates how ecolabel credibility can gradually lead to green product purchase behavior through attitude towards green product purchase and ecolabel involvement. This model can clarify, to some extent, the complicated relationship between green attitudes and behavior that is mediated by multiple factors (e.g., [25–27]). Based on our model, green marketers should build strategies that contain these concepts with the ultimate purpose to increase green product purchase. In particular, our study highlights the significance of ecolabels and particularly ecolabel credibility and ecolabel involvement. This means that green marketers have to create consumer knowledge and beliefs in such a way that consumers become aware of ecolabels and perceive them as credible information sources about products' green traits. The creation of consumer confidence and ecolabel understanding has to be the primary goal for green marketers [13,49]. In this way, consumers are able to utilize ecolabel product information, buy ecolabel products, and through this purchase reduce negative environmental impacts.

Correspondingly, public environmental policy services have to take action in order to help consumers become more confident and informed about ecolabels. For instance, public environmental campaigns that inform consumers about the credibility of ecolabels and provide extended knowledge about what ecolabels communicate should be one significant public policy action. In such a way, consumers will succeed to understand ecolabels' purposes, be aware of each scheme, and trust the information they provide. All the above are necessary preconditions for consumer to behave in a sustainable environmental way [78].

Moreover, ecolabels should be designed in such a way that they will attract consumers' attention in order to lead them in the cognitive process of ecolabel involvement. When ecolabels are noticed by consumers, design and visibility of ecolabels is the major factor that lead consumers to trust and purchase environmentally friendly products [139]. Ecolabels should be clear and easily understandable and accompanied by attracted images and explicit text about the green attributes of the product. For instance, persuasiveness of ecolabel information may be a significant trait that all ecolabels should follow in order to achieve ecolabel involvement.

Last but not least, the present model highlights the significant mediating role of attitude towards green product purchase in the whole green product purchase process. This means that when green marketers draw their strategies, they have to set as a primary goal to create and enhance consumers' attitude towards green product purchase and not only their broad positive attitude towards the environment. This can be achieved by communicating the positive environmental impact of the purchase decision about the ecolabel product. Consumers need to know exactly what these environmental benefits are. This information can enhance consumers' attitude towards green product purchase [2]. As our results have shown, attitude towards green product purchase and actual green product purchase behavior are significantly related, and no green gap is detected between these two variables.

7. Limitations and Future Research

The current study has some limitations that future research could address. First, empirical evidence is country specific, given that the survey was conducted only in the Greek cultural context. Moreover, the convenience sample used in this study restricts the generalization and the robustness of the results and provides only the perspective of urban centers' residents on ecolabels; to improve the generalizability of this model as a whole, or other alternative versions, future studies can be conducted in wider populations both in different urban and rural locations within the same country and in different countries by adopting a cross-cultural design.

The present study investigated the concept of ecolabels in terms of ecolabel credibility and ecolabel involvement. Taking into consideration the study of Taufique et al. [13] that had already developed the ECOLSCALE, future research could study the impact of other ecolabel constructs, like design and visibility, persuasiveness, information clarity, or private benefits in the relationship between green attitude and green product purchase behavior. Moreover, future studies can examine the influence of ecolabel features in the relationship between attitude towards environment and green product purchase behavior. In this way, it can be tested whether a green gap between a more general attitude towards the environment and a specific purchase behavior is detected and whether a possible mediating role of ecolabel features in this relationship may exist.

Furthermore, based on the TPB, green consumer behavior is influenced by social norms, personal values, or other psychographic variables. A future study could examine this influence by building more complex models based on the present structural model. An additional study can explore the possible moderate impact of different product categories on the present model. Finally, given that ecolabels can be regarded as visual communication tools, a promising study could examine their impact on green attitudes and purchase intentions based on an eye-tracking methodology.

Author Contributions: Conceptualization and theoretical framework, K.R., P.D., and G.T.; methodology, K.R. and N.M.; data analysis, K.R. and N.M.; software, K.R.; data collection and entry, K.R., P.D., and G.T.; supervision G.T. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Measure	Measure Items	Reference
Ecolabel credibility	Certified eco-labeled products comply with trustworthy environmental quality norms. The eco-labels displayed in the product are a good way of informing consumers about environmental safety. The presence of certified eco-labels increases the credibility of a product.	Taufique et al. (2019)
Ecolabel involvement	An eco-label is a reliable source of information about the environmental quality and performance of the product. I pay full attention to the message I read on the label. I deeply think about the information contained in eco-labels.	Taufique et al. (2014, 2016, 2019)
Attitude towards green product purchase	I give full effort to read the label. I feel that I am fully involved with eco-labels. I (1—dislike; 5—like) the idea of purchasing green. Purchasing green is a (1—bad; 5—good) idea. I have a/an (1—unfavorable; 5—favorable) attitude toward purchasing a green version of a product.	Chan (2001) Taylor and Todd (1995)
Green product purchase behavior	I use biodegradable soaps or detergents. I avoid buying aerosol products. I read labels to see if contents are environmentally safe. I buy products made or packaged in recycled materials. I buy products in packages that can be refilled. I avoid buying products from companies who are not environmentally responsible.	Picket-Bakker and Ozaki (2008)

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