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GREEN TURNS GREY: GREEN PURCHASE CONTINUITY THROUGH PROTECTION MOTIVATION THEORY

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Abstract

This conceptual paper extends the use of Protection Motivation Theory (PMT) to green consumer behavior while incorporating cognitive dissonance. The model implemented perceived severity, response efficacy, and green knowledge as vital predictors affecting consumers' protective motivations for sustainable consumption. Those with a consistent green purchasing behavior are likely to see a threat to the environment as severe and believe in the effectiveness of their action. Unfortunately, greenwashing is likely to yield cognitive dissonance and demotivate the consumer. Dissonance may arise when firms' dishonest claims of social and environmental sustainability contrast with consumers' pro-environmental moral values. This dissonance may weaken the intent to continue purchasing the product, ultimately resulting in the product's disuse, demonstrating the fragile trust consumers have in the green market. The model advocates the need for clear communication and consumer education to responsibly adopt pro-environmental behavior. This paper extends PMT beyond its conventional health domain toward sustainability and ethical marketing. On the practical side, the cultivation of sustained green consumption and the development of long-lasting consumer relationships demand real green initiatives.
Keywords: Protection Motivation Theory, Cognitive Dissonance, Green Knowledge, Greenwashing, Continuous Purchase Intention.

Hijau Menjadi Abu-abu: Kontinuitas Pembelian Hijau Melalui *Protection Motivation Theory*

Abstrak

Makalah konseptual ini memperluas penggunaan *Protection Motivation Theory* (PMT) untuk perilaku konsumen hijau sambil menggabungkan disonansi kognitif. Model ini menerapkan tingkat keparahan yang dirasakan, kemanjuran respons, dan pengetahuan hijau sebagai prediktor penting yang memengaruhi motivasi perlindungan konsumen untuk konsumsi berkelanjutan. Mereka yang memiliki perilaku pembelian hijau yang konsisten cenderung melihat ancaman terhadap lingkungan sebagai hal yang parah dan percaya pada efektivitas tindakan mereka. Sayangnya, *greenwashing* cenderung menghasilkan disonansi kognitif dan menurunkan motivasi konsumen. Disonansi dapat muncul ketika klaim perusahaan yang tidak jujur tentang kelestarian sosial dan lingkungan kontras dengan nilai-nilai moral pro-lingkungan konsumen. Disonansi ini dapat melemahkan niat untuk terus membeli produk, yang pada akhirnya mengakibatkan produk tidak digunakan, menunjukkan kepercayaan yang rapuh yang dimiliki konsumen di pasar hijau. Model ini menganjurkan perlunya komunikasi yang jelas dan pendidikan konsumen untuk secara bertanggung jawab mengadopsi perilaku pro-lingkungan. Makalah ini memperluas PMT melampaui domain kesehatan konvensionalnya menuju keberlanjutan dan pemasaran etis. Di sisi praktis, budidaya konsumsi hijau yang berkelanjutan dan pengembangan hubungan konsumen yang tahan lama menuntut inisiatif hijau yang nyata.
Kata kunci: *Protection Motivation Theory*, Disonansi Kognitif, Pengetahuan Hijau, *Greenwashing*, Niat Pembelian Terus Menerus.

1. Introduction

The increasing global challenges, such as climate change, resource depletion, and environmental degradation, signalling the urgent need for more sustainable patterns of consumer behavior. As more and more societies are pressured towards sustainability, the psychology underlying the decision-making processes of consumers and the behavioral patterns. These decisions have become a focal point of interest for researchers, as well as policy-centric and practitioner stakeholders. As societies strive to promote more sustainable consumption behaviors, it becomes increasingly important and necessary to understand the mental processes that guide consumers' decisions. Similarly, Protection Motivation Theory (PMT) is a key theory that explains how individuals perceive the causes and consequences of environmental issues and their capacity to address them. Some of the perceived elements of PMT, such as perceived severity and response efficacy, have been shown to have a significant impact on consumers' motives and behaviors towards engaging with and using green products (Chaudhary, 2018; Kumar & Pandey, 2023).

However, the effectiveness of these motivational processes is often put to the test with the practice of greenwashing. This practice also entails making untrue or overstated claims about a product or service's environmental impact. Greenwashing also leads to a decline in consumer trust in people's ability to think about the consequences of their actions, and it contributes to cognitive dissonance. The inconsistency exists between consumers' attitudes towards environmental conservation and their purchasing choices (Desai & Bhatt, 2024; Jauwrias & Mbouw, 2021). This finding is sustained in the literature on the 'green attitude behavior gap,' where the consumers support sustainable consumption, but their financial contributions are inconsistent with their actions (Jauwrias & Mbouw, 2021; Onel, 2016). A comprehensive cognitive analysis is necessary to understand the gap, particularly in relation to the emotionally charged aspect of "green knowledge." The impact of greenwashing on consumers cannot be mitigated due to consumers' limited knowledge and understanding of eco-sustainable practices. Failure to address these issues will lead to a decline in consumers' trust concerning sustainability claims. This undermines the credibility of public policy and harms the lawful businesses that are willing to engage with climate change. Which also becomes a problem, diverting funds and resources away from genuine sustainable initiatives and offerings (Bostrom et al., 2018; Kothe et al., 2023).

Previous research on green consumer behavior has noted the splitting of elements and their disadvantages, particularly the split between Protection Motivation Theory (PMT) and greenwashing, which can generate cognitive dissonance. This obscures the understanding of consumer motivators and barriers. Narrow focus on purchase intention, while overlooking other key elements, such as brand loyalty and ongoing commitment to a sustainable brand, is inadequate. Further research is needed to gain insights into the intention-behavior gaps. Understanding this difference is crucial for effective marketing practice.

The relationship between purchase intention, which is fragmented, and the intended discontinuous usage of the product in sustainable consumer behavior is significant but lacks sufficient theoretical exploration. Identifying these gaps requires an explicit construct of the limits of the marketing actions. Such development must also clearly articulate the equity in marketing. Hence, integrating the findings from the previous sections, along with the other gaps, specifically those concerning continuous and discontinuous usage intentions, becomes necessary. The value integrated in the gaps also needs to be explored.

Furthermore, continuous usage intention refers to the intention to purchase sustainable products regularly. The construct of discontinuous usage behavior is defined as the intention to discontinue or abandon such behaviors. This paper also aims to construct a more comprehensive conceptual framework that incorporates and combines diverse facets of protection motivation, perceived severity, response efficacy, green knowledge, greenwashing, cognitive dissonance, continuous purchase intention and discontinuous usage intention. This attempt aims to bring value and enhance theoretical and practical efforts directed at stakeholders, promoting genuine, proactive sustainability and fostering persistent intentions and behaviors. It is beyond doubt that disaggregating the theory and understanding the practical implications of these overlapping psychological and contextual factors are valuable and important. The growing scale of environmental challenges, along with increasing skepticism about sustainability-related claims, makes an integrated perspective on consumer motivation and behavior for this phenomenon utterly important and timely. This conceptual piece aims to contribute to the discourse on sustainable consumption by examining the factors that enable or constrain the enactment and continuation of sustainable behavior.

2. Theoretical Background

2.1 Protection Motivation Theory (PMT)

Protection Motivation Theory (PMT) was initiated by Rogers (1975) and modified in 1983, serving as an extension of the Health Belief Model (HBM). Rogers' PMT framework explained and advanced how and why individuals take up behavioral protective measures when perceived threats occur. Protective Motivation Theory suggests that individuals will engage in self-protection behaviors when a risk is perceived as serious and the defensive behaviors are considered practical and feasible (Marikyan & Papagiannidis, 2023). In this context, PMT posits that individuals perform a cost-benefit analysis between inaction and the new self-defense behaviors, as well as the recent protective measures (Keshavarz & Karami, 2016). PMT has been adapted for use on a broader scope beyond its initial health-centered focus to include disaster preparedness, cybersecurity, and environmental (Maichum et al., 2016; Mirkarimi et al., 2015).

The theory has two main components: threat appraisal and coping appraisal. The first component, threat appraisal, evaluates the severity and vulnerability of the threat. Some consumers may view environmental degradation as a serious concern. Their contextual pro-environmental behavior may include purchasing environmentally friendly products. Of course, context will shape the strength of this perception (Zheng et al., 2021). Coping appraisal assesses an individual's perception of their ability to respond. This relates to response efficacy the belief that a suggested course of action will mitigate the threat and self-efficacy, which measures an individual's confidence in enacting the action.

Sustainable consumption is likely to occur when consumers believe that purchasing green products will help mitigate environmental degradation and that they can do so consistently. The ability to adapt enhances the understanding of protective actions influenced by individual perception and contextual factors (Haag et al., 2021). Green marketing integrates products with eco-friendly values as a form of PMT in consumer markets. However, practices such as greenwashing erode trust, cause cognitive dissonance, and negatively influence pro-environmental behavior (Irawati et al., 2023).

2.2 Perceived Severity

Perceived severity remains important because it determines how individuals evaluate threats and their potential consequences, which ultimately affect risk evaluation and protective action discrimination (Mirzaei-Alavijeh et al., 2020). Individuals perceive the severity of a threat and are more likely to assume it requires action than those who believe the threat is minor (Bagasra et al., 2023). Perceived severity explains why individuals take steps to avert a negative outcome that may arise from inaction (H. Li et al., 2022; Mankad & Loechel, 2020). In terms of environmental impacts, the perceived level of severity affects attitudes towards the environment and consumer behavior, influencing green buying and the adoption of sustainable practices. Studies have shown that individuals who consider environmental risk serious are more inclined to engage in activities that mitigate environmental harm (Anderson & Agarwal, 2010; Johnston & Warkentin, 2010; Lee & Larsen, 2009).

Perceived severity significantly influences the integrated cognitive-emotional responses that drive consumer behavior. Cognitive dissonance occurs when a consumer views a harmful ecological situation as severe yet continues to consume without interruption. This dissonance motivates consumers to achieve balance by aligning their behavior with their dissonant environmental attitudes through the purchase of sustainable products and services or by patronizing companies that are highly committed to environmental protection. This identifies a situation where the perceived severity of an unsustainable action serves as a motivator but also acts as a psychological catalyst to exacerbate dissonance.

2.3 Response Efficacy

Response efficacy is defined as an individual's belief that the person's willingness to adopt the recommended protective behavior will sufficiently reduce the risk (Curto & Turrina, 2023; Floyd et al., 2000). In the sustainability context, it relates to a consumer's belief that purchasing green products will significantly reduce the use of toxic ingredients in environmentally unsustainable products (Mankad & Loechel, 2020; Zheng et al., 2021). Individuals with a positive motivation for response efficacy are most likely to exhibit an active response in the situation, as the perceived incentive action will yield positive returns, thereby justifying the protective measures in question (Thampanichwat et al., 2023). Response efficacy can undermine the psychological state of a person confronted with a potential environmental threat, which, in turn, considerably decreases motivation.

There is empirical evidence that sustaining perceptions of response efficacy positively impacts both health-related behavior and behavioral eco-responsibility. Consumers who believe that protective action 'works' tend to engage more frequently in prevention or sustainable action (Jabbar et al., 2024; Lamri & Lubart, 2023). For this reason, information provision is vital. For example, articulating how green products mitigate the ecological harm associated with their use enhances the efficacy of responses

to green actions by a significant percentage (Valencia-Félix et al., 2024). From a marketing standpoint, this suggests that the more positive and less ambiguous the message regarding green action is, the more persuasive it becomes. Individual action is significant in achieving primary goals, such as social justice or environmental preservation (Roberts, 1996). The literature indicates that greater consumer efficacy is correlated with more positive pro-environmental and prosocial behavior, as well as increased eco-consumption (Gupta & Ogden, 2009; Mostafa, 2006; Wesley et al., 2012). This is more evident in sustainable consumption, where response efficacy considerably determines whether consumers, aware of the environmental situation, will actually engage in eco-friendly actions.

2.4 Green Knowledge

Green knowledge, also referred to as environmental knowledge, implies an individual's understanding of environmental issues and the means related to information, as well as concerns related to the sustainability of consumption (Mohiuddin et al., 2018). Green knowledge also has both positive and negative aspects; the former consists of knowledge about specific environmental facts, while the latter involves understanding larger, more abstract issues and the possible resolutions to these issues (Schahn & Holzer, 1990). Informed consumers are more likely to make purchasing decisions that align with their moral values; thus, higher levels of green knowledge are associated with pro-environmental actions (Afum et al., 2022).

Education is the most effective means to promote the cultivation of this knowledge, and the enhancement of the public's engagement with environmental protection has also resulted from outreach activities and initiatives focused on sustainability. The green knowledge that individuals possess reinforces decision-making, designing, and the provisioning of eco-friendly products and services, thus promoting social and economic sustainable development (Zbuchea et al., 2019). The role of green knowledge in consumer behavior is important for enhancing understanding of sustainable consumer behavior and for protecting consumers from greenwashing. Increased attention to the environment enables consumers to identify unscrupulous greenwashing and make informed purchasing decisions, thereby strengthening their intention to buy truly environmentally sustainable products (Netto et al., 2020; Valendia & Purwanegara, 2022).

Consumers may experience cognitive dissonance due to ignorance as they attempt to bridge the disconnect between their environmental values and the unsupported sustainability claims of the product (Dang et al., 2024). Trust-building user responses can be facilitated by truthfully communicating the benefits of a product or its substantive claims to prospective consumers (Malik et al., 2020). Hence, Boss et al. (2015) and Luo et al. (2021) point out that protection motivation theory and green knowledge influence consumer behavior, where green knowledge acts as a predictor of the strength of green marketing and consumer willingness to purchase green products (de Sio et al., 2022; H. Wang et al., 2019).

2.5 Greenwashing

The phenomenon of greenwashing involves making uncertain claims about sustainability (Parker et al., 2023). Although businesses may attempt to enhance their image regarding environmental responsibility, the consequences typically involve a backlash of distrust and negative associations with the brand (Netto et al., 2020; Sun et al., 2024). Psychologically, the practice prevents consumers' sustainable decision-making by creating and maintaining cognitive dissonance regarding environmental values and misleading marketing claims, thereby confusing what constitutes sustainable behavior (Boss et al., 2015).

Consequently, marketing efforts focused on sustainability are undermined, as closing the long-term credibility gaps in consumer perceptions is virtually impossible, given that intent to purchase declines (Desai & Bhatt, 2024). Further studies confirm that greenwashing harms relationships with individual brands and trust in the marketplace as a whole. Environmentally concerned consumers are quick to disengage with brands they perceive as inauthentic (Li et al., 2025; Ye et al., 2022). The effects of greenwashing on reputation are systemic, intertwined with, and, on a larger scale, damaging to the social reputation of other businesses in the same industry, even those that are genuinely sustainable (Wang et al., 2020). Trust erosion of a business's green reputation devalues a business and decreases a consumer's willingness to buy its green products, potentially stagnating the movement of responsible consumption (Y. S. Chen & Chang, 2013; Hameed et al., 2021).

2.6 Cognitive Dissonance

Cognitive Dissonance Theory explains the conflicted feelings a consumer experiences when their environmental beliefs do not align with their buying habits. When consumers encounter misleading promotional messages, cognitive dissonance helps explain the inconsistency. Festinger first introduced the theory in 1957. He outlined that people strive for consistency among their beliefs, attitudes, and

behavior, and when such consistency is not achieved, psychological discomfort occurs. Most dissonance theories treat discomfort as a consequence (Harmon-Jones & Harmon-Jones, 2022). Within the sustainability framework, this type of psychological dissonance most often occurs in cases of greenwashing. If consumers perceive discomfort arising from misalignment of marketed product attributes with product attributes, they will also have diminished purchase intentions (L. Wang et al., 2025).

The negative psychological states are likely also to decrease continuous purchase intentions, which can lead to discontinuation. Resolving dissonance can be achieved in several ways, such as changing one's attitude or behavior, or simply attributing the differences to some form of rationalization (Annu & Dhanda, 2020; Egan et al., 2007). Environmentally conscious consumers purchase from an environmentally fraudulent company and then rationalize the discrepancy. To ease their guilt, consumers can justify the purchase or resolve it entirely by ceasing their support for the company. Research indicates that dissonance negatively impacts their loyalty to the brand and their general intention toward green purchases (Alamdari et al., 2021; Munir et al., 2023). This supports the claim that cognitive dissonance plays a significant role in explaining the gap in consumer behavior that results from unethical marketing practices.

2.7 Continuous Purchase Intention

Continuous purchase intention indicates the consumer's intention and willingness to repeatedly buy a specific brand or product over an extended period of time. This explains the psychological, emotional, and situational mechanisms that influence consumers' decisions to purchase, including positive encounters with the brand, perceived trustworthiness of the brand, and the value the product delivers (Kwauk & Casey, 2022). To achieve positive company outcomes, study participants with deep-rooted customer relationships and a customer portfolio typically declare a market outreach focus; these organizations must appreciate the strategic importance of maintaining an uninterrupted intention to purchase service or product offerings (L. Wu et al., 2023).

Integrated rewards, personalized promotions, and sophisticated customer satisfaction frameworks, according to strategies, may influence the desire for repeat purchases. As outlined in other studies, continuous purchase intention is related to recognition and trust, while experience and behavior with a purchase differ in the factors that comprise the purchase. Customers who repeat a purchase within a specific period tend to develop greater satisfaction, a higher perceived value, and a more profound sense of mastery, which in turn reinforces their willingness to make future purchases. Moreover, research indicates that purchase intention predicts actual purchasing behavior (Canniere et al., 2010). Encouraging individuals to engage for extended periods involves finding the right balance between the product's characteristics and the platform's features. Those consumers who engage in sustainable and purposeful purchasing indicate a high demand for sustainable markets.

2.8 Discontinuous Usage Intention

Discontinuous usage intention refers to the point at which a consumer chooses to stop using a product, service, or platform, often due to a perceived lack of value, the need for modification, or the availability of other substitutes (Kiyak & Grigolienė, 2023). Frustration, disappointment, and other emotional and cognitive factors related to the value of a product, service, or platform are usually decisive in resolving a contested issue (Zhu et al., 2021). Moreover, negative brand feedback and loss of trust are among the leading causes for consumers to withdraw fully, making it clear that positive relational and reliable value compensations need to be reinforced to mitigate (Shulha, 2024).

Knowing what triggers discontinuation, firms can implement responsive measures to improve customer retention, such as enhancing customer service, innovating features, and adapting to a changing market. Discontinued usage intention has been approached from different theoretical perspectives in the literature. The stimulus-organism-response theory states that certain external factors, such as information overload and a lack of communication, can result in disengagement or a complete cessation of attention. Consumers can become disengaged and withdrawn to the point of ceasing all attention (Cao & Sun, 2018; Luqman et al., 2017). Disengagement in relation to the green marketing of ethically sustainable products is an important issue that remains under-researched.

Furthermore, Ye et al. (2020) describe the stressor-strain-outcome model that focuses on the determinants of fatigue, dissatisfaction, fear of missing out, and disengagement. For businesses aiming to minimize consumer disengagement, striking a balance between external and internal evaluations of disengagement is crucial. In disengagement with green marketing, the practice and marketing of environmentally friendly processes are inconsistent, creating the phenomenon of greenwashing. Unsustainable consumerism, deep disenchantment, and gradual disaffection with the brand are losses

created by greenwashing, and these must be addressed through honest and transparent communication about the brand's sustainable practices.

3. Proposed Conceptual Framework

The proposed conceptual framework incorporates elements of protection motivation theory alongside perceived severity, response efficacy, green knowledge, greenwashing, cognitive dissonance, continuous purchase intention, and discontinuous usage intention. This framework aims to investigate the psychological and behavioral dynamics of consumer choice related to sustainability. More specifically, the intersection of motivation, knowledge, and perceived trust influences purchasing and consumption behavior. The combination of PMT and consumer psychology enables a better understanding of the intention-behavior gap associated with disengaged green consumption. PMT also forms the basis for understanding the scope and severity of environmental threats individuals encounter, as well as how they assess their ability to take appropriate action. Within this context, perceived self-efficacy and response efficacy significantly influence the promotion of continuous purchase intentions, as consumers are willing to adopt and maintain a value-consistent, sustainable purchasing behavior. Here, green knowledge facilitates these processes by alleviating uncertainty, thereby diminishing cognitive dissonance and strengthening pro-environmental action. On the contrary, dissonance occurs when consumers experience poor green practices, such as greenwashing, which often leads to discontinuous usage intentions. Thus, the disruptive role of dissonance exemplifies a corrective mechanism in response to fraudulent practices, while simultaneously obstructing the prolonged assimilation of green products.

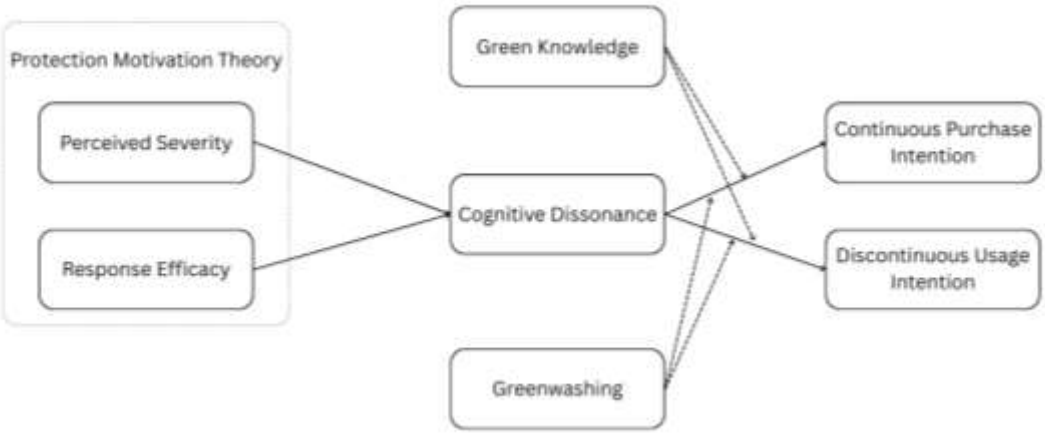

Figure 1: Proposed Framework

This proposed framework aims to explore consumer trust, reduce disengagement, and strengthen green knowledge, while minimizing greenwashing and removing consumer barriers to sustainable purchasing, ultimately leading to the desired sustainable purchasing behavior. The proposed framework encompasses PMT and the additional constructs of perceived severity, response efficacy, green knowledge, greenwashing, and cognitive dissonance, as illustrated in Figure 1, to explain consumer behavior in green marketing. The framework distinguishes between the intention to purchase a product continuously and the intention to use it discontinuously. This framework describes how pro-environmental behaviors are formed due to the push factors (e.g., efficacy and knowledge) and the pull factors (e.g., dissonance stemming from greenwashing). It describes how the construct of greenwashing can be positioned as a moderating variable. This structure indicates the complexity of consumer behavior towards sustainability claims. It highlights the absence of dissonance as a critical factor in fostering sustainability and the sustainable consumption of marketed products.

4. Relationships Among Variables

4.1 Perceived severity to Cognitive dissonance

The importance of severity in the social-psychological context helps bridge the gap within the theory of cognitive dissonance. This concept relates to a consumer's assessment of the seriousness of a threat and the intensity of its consequences (Mirzaei-Alavijeh et al., 2020). When the threat is assessed as significant, an individual is inclined to engage in 'preventive behaviors' in anticipation of the possible repercussions of an action (Bagasra et al., 2023). Cognitive dissonance occurs when a person's beliefs

and actions conflict (Annu & Dhanda, 2020; Festinger, 1957). Cognitive dissonance is more intense when a consumer perceives a significant threat and fails to engage in valued behavior. Dissonance is likely to be stronger in an environmentally conscious consumer who purchases products that are not green. The inconsistency in their perception and the actions taken intensifies the discomfort caused by the perceived threat severity (Kothe et al., 2023). To reduce dissonance, antagonistically held attitudes may be adjusted, and behaviors can be explained in a way that, rationally, they shift to less non-green alternatives (Badar & Siddiquei, 2024; Hansen et al., 2023). Therefore, perceived severity fuels cognitive dissonance and, in so doing, 'protective motivations.' This discrepancy may serve as a motivator for changing behavior, as it allows consumers to align their choices with their ecological values (Jeihooni et al., 2022; Sanguinetti, 2023). While this is a disconnect, it also provides insight into how green marketing strategies can be formulated. By increasing the emphasis on the seriousness of the threats, marketing strategies may escalate perceived severity, which amplifies the inconsistency of one's behaviors and consequently creates a shift toward more protective and sustainable behaviors.

4.2 Response Efficacy to Cognitive dissonance

Response efficacy plays a dual role in these circumstances, serving both as a trigger and a shield. The psychological response mechanisms of consumers are enhanced, thus enabling them to respond to dissonance more effectively and avoid making ecological choices that are dissonant with their beliefs. Cognitive dissonance is the discomfort that arises from the discordant elements of a person's value, belief, and action system (Festinger, 1957). In terms of purchase sustainability, dissonance applies when consumers' behavioral adoption of a pro-environmental attitude leads to a disregard for eco-friendly purchasing decisions (Annu & Dhanda, 2020; L. Wang et al., 2025). As consumers attempt to reduce this dissonance, they rely on emotional regulation and the evaluation of response efficacy, believing that they can take actions that will mitigate the environmental threat. How consumers manage dissonance is primarily determined by their response efficacy. Consumers who take actions they believe are environmentally friendly are more likely to experience dissonance and act in more constructive ways (S. Chen et al., 2023).

When consumers lack response efficacy, dissonance is increased, which may also negatively rationalize their actions to reduce dissonance, or they may have discontinuous usage intentions toward an eco-labeled product due to feelings toward the product that is claimed to be eco-friendly and environmental misalignment with the product (Schrems & Upham, 2020). Response efficacy operates in two distinct yet interconnected facets: it reduces the psychological discomfort of cognitive dissonance while encouraging individuals to change their consumption patterns. Thus, the elevation of consumers' psychological response efficacy will have a positive impact on dissonance and solidify the positive, environmentally oriented decisions.

4.3 Cognitive dissonance to Continuous Purchase Intention with Green Knowledge as Moderator

Environmentally sustainable decisions dissonance promotes more consistent, positive, and ecologically sustainable outcomes. The discomfort and inconsistency that form the basis of cognitive dissonance can shape the consumer's thought process when acquiring green products. Adjustment of dissonance can occur through behavioral or attitudinal change (Festinger, 1957). In the context of green marketing, consumers may experience discomfort when buying non-green products, especially when they consider themselves eco-friendly and value sustainability. This phenomenon of feeling pain is sometimes experienced as guilt, intent to repurchase in a harmful manner, or a move to a more benign purchase—most of the research on cognitive dissonance has been centered on the outcomes, especially in the post-purchase phase (Wilkins et al., 2016; Yakın et al., 2023).

The effect of the preceding phase, especially the anticipation of dissonance, on purchase intention has received limited attention (Xu & Jin, 2022). This concern, therefore, leaves dissonance gap unaddressed, particularly in terms of its implications for customer loyalty in relation to pre-decisional dissonance. Within this scope, the function of green knowledge as a moderating influence in cognitive dissonance is particularly relevant. Environmentally conscious consumers are more likely to understand the ramifications of their decisions, thereby reducing dissonance, which in turn increases their pro-attitude toward purchasing sustainable products (Amoako et al., 2020; Silintowe & Sukresna, 2023; Yadav & Pathak, 2016). The information gap could be bridged, and dissonance could be reinforced to promote repeat purchases when consumers are targeted with clear and explicitly framed benefits of eco-friendly (Sharifi & Esfidani, 2014; H. Wang et al., 2019). Thus, dissonance is not allowed to be an abstract concept. Integrated into communication channels, promoting educational brand dissonance could reinforce discomfort, thus creating the needed impetus and motivation for pro-environmental action. The interaction of cognitive dissonance with green knowledge and the intention to repeat purchase is vital to the seamless promotion of sustainable consumption. Compounding this interaction will shift

the reliance of primary consumers on green and environmentally sustainable products. These changes will make green products more accessible and provide the necessary ecological benefits, thereby establishing market sustainability.

4.4 Cognitive dissonance to Discontinuous Usage Intention with Green Knowledge as Moderator

Cognitive dissonance is the phenomenon of conflicting beliefs and behaviors that produces discomfort, influencing subsequent behaviors and decisions. Within the context of the consumer dissonance phenomenon, discomfort influences intended behavior norms surrounding products, particularly the decision to continue or discontinue use. Research indicates that individuals modify their attitudes and behaviors, at times through information avoidance, to ease dissonance. Most studies indicate that consumers who purchase eco-friendly products receive supportive feedback, which in turn strengthens their resolve to continue buying these products (Equils et al., 2023; Tanford & Montgomery, 2014). Consumers who purchase products that are not green experience dissonance and discount the value of eco-related information, which then leads to the abandonment of genuinely sustainable products (Zohbi & Pilotti, 2023). Following Festinger's research, it can be posited that all individuals seek cognitive equilibrium (Boiko, 2021). More knowledgeable individuals on environmental issues will correlate evaluations to the value during their decision-making. In these cases, dissonance may serve as a motivator for more sustainable and engaged adoption of environmental practices (Oxoby & Smith, 2014; Raima et al., 2021).

The impact of cognitive dissonance on consumer behavior hinges on the implications of dissonance. Consumers with greater environmental knowledge understand the consequences of their decisions on the environment, which leads to a reduction in discontinuous usage and makes them more loyal to sustainable products (Freijy & Kothe, 2013). Dissonance may lead consumers to inaction more readily when they lack sufficient green knowledge (Liu & Keng, 2014). In this situation, consumers may "discontinue" the action in question. As a factor in the decision to stop a purchase or action, green knowledge directly and easily modifies the extent to which the attitude-behavior gap and the consistency of green actions are observed. Dissonance not only impacts usage intention but also shapes the boundaries of sustainable consumption. Consumers may experience psychological tension due to their green knowledge; however, it ultimately serves to encourage them to persist with eco-friendly products. The results of this study demonstrate the importance of consumer education and green marketing.

4.5 Cognitive dissonance to Continuous Purchase Intention with Greenwashing as Moderator

Discomfort triggers the desire to eliminate the discrepancy between one's beliefs and actions. Skepticism regarding the environmental benefits of products after purchase may lead to dissonance for individuals who buy green products. Greenwashing, the practice of making unsubstantiated or overstated environmental claims about a product, is a prime contributor to dissonance described. Greenwashing leads to a dissipation of trust among consumers and aggravates the gaps between consumers' actual behavior and their values (Santos et al., 2023; H. Wu et al., 2018). This understanding and framing of greenwashing within the context of contradictory green marketing issues helps develop a greater willingness to repurchase. Dissonance literature informs us that within the bounds of cognitive dissonance, repurchase intentions are likely to be disallowed. Cognitive dissonance can inhibit the repurchase of a product, cause consumers to switch to another brand, or lead to complete disengagement with green alternatives (Powers & Jack, 2013; Wilkins et al., 2016).

Greenwashing intensifies the impact of dissonance and disengagement on consumers, as it increases disillusionment and distrust, thereby undermining loyalty (Rahman & Nguyen-Viet, 2022; Witek & Kuźniar, 2021). While trustworthy and open communication about a company's sustained green business practices can reduce cognitive dissonance and foster enduring trust, false communication about a company's green efforts generates cynicism and reinforces discontinuous usage patterns (Jog & Singhal, 2020; D. Wang & Walker, 2023). The presence of third-party certifications, combined with transparent reporting of product usage, reduces cognitive dissonance and serves as a rational system of accountability, thereby aiding in the retention of purchase intentions over a sustained period. The link between cognitive dissonance and greenwashing, as well as the predictor variable of intention to repurchase, suggests a need for revision in sustainable marketing. Several companies have alleviated the discomfort associated with cognitive dissonance, allowing customers to leave the shop without feeling guilty. They are fully confident that what they have purchased is morally acceptable. By avoiding disingenuous green marketing, customers can gain loyalty and promote sustainable consumption.

4.6 Cognitive dissonance to Discontinuous Usage Intention with Greenwashing as Moderator

Psychological discomfort from conflicting beliefs and actions is known as cognitive dissonance (Hasnain et al., 2020). When it comes to green marketing, consumers react negatively when they see discrepancies between what brands advertise as sustainable and what they actually do. Misleading

marketing that exploits consumers' environmental concerns is termed "greenwashing." It aggravates dissonance and undermines customer trust and behavior (Santos et al., 2024). People perceive greenwashing as unethical business behavior, which significantly reduces their intention to make purchases. Furthermore, it increases discontinuance of use as consumers disengage from the brand and, in some cases, the entire industry (Jagani & Saboorideilami, 2025; M. Li et al., 2025).

Greenwashing intensifies the cognitive dissonance effect, thereby accelerating disengagement. When consumers experience dissonance as a result of a deception, they become increasingly skeptical and untrusted, leading them to disengage and switch to competing brands. This, in turn, increases the rate of discontinuance in usage (Ferreira & Santos, 2020; Sheng-hong et al., 2024). The regret, information-seeking, and disillusionment resulting from untruthful marketing strategies can further contribute to disengagement. In the case of the former, genuine green initiatives and truthful dialogue are more likely to counteract dissonance, thereby securing loyalty (Balasenthil, 2024; Huang et al., 2014). The combination of cognitive dissonance, greenwashing, and discontinuation of use intentions powerfully suggests that the need for genuineness in green marketing is time-sensitive. Practitioners who overstate or misrepresent their environmental marketing strategies will unleash dissonance, confusion, and skepticism, ultimately leading to disengagement from the brand. Compared to those who are honest about their sustainable initiatives, they will ultimately build trust with their consumers, face lower levels of dissonance, maintain continuous usage, and strategically enhance relational sustainability with them.

5. Conclusion

The extension of Protection Motivation Theory (PMT) on green consumer behavior and subsequent psychological frameworks is instrumental in understanding sustainable decision-making. PMT deals with how individuals respond to potential threats in their environment and how they assess the severity of these threats and their own capability to respond (Moeini et al., 2018). In the context of green marketing, pro-environmental purchase intentions are influenced by the perceived efficacy of the response and self-efficacy. Environmentally knowledgeable consumers are more likely to view sustainable actions as effective and experience greater correspondence alignment with their ecological values (H. Li et al., 2022; Silintowe & Sukresna, 2023).

The conceptual framework was developed by demonstrating how shifting environmental attitudes manifest into enacted green consumption behaviors, while highlighting the importance of the cognitive assessments and the underlying motivational components of this process. The growth of greenwashing is one of the key factors that lowers the operability of these mechanisms. Greenwashing produces cognitive dissonance, and consequently, it creates barriers to aggressive purchasing and value realization. Psychological discomfort arises when there is a misalignment between one's finances and pro-environmental behaviors, resulting in greenwashing (Kang et al., 2013; Yoon & Joung, 2019). This dissonance then leads to disengagement from sustainable brands and from sustainable consumption entirely.

The framework explains how discerning consumers who assess green claims use this knowledge as a cushion to resolve dissonance that arises when claims are deceptive, enabling them to persist in pro-environmental behaviors. This literature contribution is the first to integrate the motivational factors of trust and knowledge in the field of sustainability, offering concrete suggestions for practitioners and policymakers. Most notably, the framework emphasizes the importance of empowering consumers through educational materials, sustainable marketing, and strategies that foster genuine emotional connections to the cause of sustainability and environmentally responsible consumption. This will enhance the theoretical contribution of the framework and, most importantly, will address the need to sustain engagement on the adoption of environmentally responsible consumption patterns. This framework contributes to advancing PMT by contextualizing it within sustainability psychology and ethical consumerism.

Implications for Research and Practice

Integrating Protection Motivation Theory (PMT) within consumer behavior through the lens of green consumption offers important insights for firms, policy makers, and organizations. The addition of response efficacy, cognitive dissonance, and green knowledge constructs within the framework addresses the intention of continuous purchasing and the intention of discontinuous usage. The implications of PMT for businesses include the need for consumer education, consistent and transparent communication, and genuine marketing efforts. Well-designed educational campaigns focused on helping consumers understand the environmental issues and the benefits of the particular product may lessen cognitive dissonance when consumers forgo their pro-environmental beliefs and purchasing behavior (H. Wu et

al., 2018). Companies can mitigate the negative consequences of greenwashing by enhancing green knowledge and demonstrating the actual effectiveness of their eco-friendly products.

From a policy perspective, PMT helps in charting out frameworks that focus on heightening consumers' perceptions surrounding the severity and vulnerability of environmental degradation and, at the same time, increasing the perceived efficacy of engaging in sustainable behaviors. Such insights can aid governments in promoting transparency, more significantly cracking down on greenwashing, and encouraging "real" sustainability in the market (Zhang et al., 2016). For organizations, incorporating PMT entails considering not just the consumers and their behaviors but also internal practices. Systematic training on self-efficacy and response efficacy associated with green practices helps in bonding the organizational actions to the sustainability goals and in overcoming the cognitive dissonance that may exist between the corporate goals and the individuals (Quoc et al., 2023). Marketing to cultivate relationships should include trust-constructing elements such as open communication, testimonials, and aligned performative dissonance, where the performance of the product meets the expectations that the consumers have (Sharifi & Esfidani, 2014; Tanford & Montgomery, 2014).

This integration illustrates how substantial the role of enhancing response efficacy is in building sustainable behaviors, while the role of managing cognitive dissonance is equally critical in maintaining them. Organizations and enterprises that focus on the knowledge of the consumer and offer and practice trustworthy information and services will not only promote pro-environmental behaviors but will also enhance trust in green marketing. For subsequent studies, this makes the focus on the somewhat neglected areas such as social identity and cultural diversity, as well as enhanced approaches like longitudinal designs and big data analytics, truly paradigm-shifting. Frameworks that can pivot the consumer value and behavior gap will foster an ecosystem that enables ecological as well as organizational sustainability and growth. There is value in having research that can defend the building of a green marketing framework that is underpinned by consumer behavior research. This will promote scholarly research as well as practice in areas such as culturally sustainable marketing.

Directions for Future Research

Future research extending the Protection Motivation Theory (PMT) framework to green consumption must seek to advance the understanding of the role of psychological and contextual factors. Future research must extend the role of perceived sevenity, response efficacy, and cognitive dissonance, and green knowledge in understanding continuous purchase vs. discontinuous usage intentions. The influence of anxiety on pro-environmental behavior has been studied more than the impact of calmness on strengthening empowerment and the processes of dissonance reduction (Rosa & Jorgensen, 2021; Tchetchik et al., 2021). Research has also emphasized the effects of green knowledge on increasing purchase intentions. However, the effects of mediated dissonance, dissonance, perceptions of morally offensive greenwashing, and other related elements on the behavioral outcome still need to be investigated (Afsar & Umrani, 2019; Thanh & Bac, 2025).

The impact of more significant contextual variables should be emphasized more. For instance, within predominantly Western contexts and frameworks, cultural diversity has received little scholarly attention. Understanding cross-cultural dynamics might clarify the ways values and norms operate within and across individualist and collectivist frameworks, particularly in sustainability communication (Vu et al., 2021; Wei & Jung, 2017). The current era of technology, especially big data and AI, allows researchers to conduct studies on the longitudinal analysis of consumer behavior, providing evidence of how the intention to use a product discontinuously shifts (Ajzen, 2020). Furthermore, social-psychological factors, namely social identity, peer pressure, and moral obligation, are inadequately incorporated within the PMT framework even though they account for important dynamics of collective engagement in green activity (Shah et al., 2020). It is hoped that interdisciplinary, cross-cultural, and longitudinal work that incorporates the emotional, the cognitive, and the contextual will become the primary focus of new research.

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