


Article

Does Psychological Ownership Matter? Investigating Consumer Green Brand Relationships through the Lens of Anthropomorphism

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Abstract: Environment sustainability is becoming an important social obligation for organizations. As consumers are becoming conscious of the environment conservation, organizations are using technology to increase efficiency while saving labor costs and providing a unique in-store experience, engaging consumers interaction with the brand. Artificial intelligence (AI), that involves machines or applications mimicking human intelligence, is transforming the manner in which the consumers interact with the brands. Applying the theory of anthropomorphism and the psychological ownership theory, this study significantly contributes to the existing literature by investigating the interplay between crucial constructs such as AI anthropomorphism, psychological ownership, and product usage barrier in the context of green brands. Data was collected through a questionnaire from Indian consumers (N = 295). Data analysis was conducted using the SPSS PROCESS macro. The study provides empirical evidence on the significant role of psychological ownership with green brand AI anthropomorphism for building consumer relationships. The findings revealed that green brand AI anthropomorphism creates product usage barriers, but along with psychological ownership, the influence on consumer relationships remains positive.

Keywords: green brand AI anthropomorphism; product usage barrier; psychological ownership; consumer relationship



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1. Introduction

Environmental sustainability is a crucial issue that has gained prominence across the globe. Acknowledged as a development goal by the United Nations [1], an emerging megatrend [2] and a strategic business objective [3]), sustainability has paved the way for green brands [4]. As consumers are more aware of environmental issues, environmental protection has become a social obligation for companies and a key profit opportunity [5]. Thus, developing green products has become crucial for promoting sustainability and business performance [6,7]. Green products are reusable, bio-degradable and eco-friendly, with a less negative impact on the environment at all stages of their life cycle [8,9]. These green products are widely acclaimed due to their immense advantages in terms of environmental and health benefits, energy conservation and resource savings [10]. As sustainability has metamorphosed into a global issue, green consumerism has become pervasive [11]. It has led to an increased focus on green products, green designs, green technology, green advertising, and greener earth as a business philosophy of companies [12]. The vast market penetration of green products in recent years has garnered the interest of the companies in building sustainable consumer-green brand relationships [13].

The rising consumer preference for green products, their readiness to switch to them, and green marketing significantly influence consumer's purchase behavior [14–16]. Furthermore, brand anthropomorphic marketing is increasingly used by companies to differentiate

their products from their competitors, which in turn influences consumers' behavior and purchase intentions [17]. Anthropomorphism is the phenomenon by which human-like characteristics, properties, behaviors, and mental states are ascribed to non-human entities perceived as distinctly human by people [18]. It is explained as the degree to which a brand is observed as an actual human being [19], and hence the consumers perceive the same relationship with the brand as with other humans [20]. Anthropomorphism has become crucial for green brands as it enables companies to differentiate themselves from their competitors [21]. In addition, the fusion of technological advancements such as machine learning, artificial intelligence (AI) and robotics has made green brand AI anthropomorphism with human-like features a reality [22]. An AI system is a "machine-based" system that can make recommendations, predictions, or decisions that influence real or virtual environments for a given set of human-defined objectives [23]. The AI interfaces offer immense potential to the companies to differentiate themselves from the competitors by increasing efficiency, decreasing labor costs, providing a unique in-store experience, engaging consumers and altering the consumer interaction with the brand [24]. Though the use of AI anthropomorphism is promising, integrating it effectively into the marketing strategies of the companies and comprehending the consumers' reaction to it demands investigation [25]. Over the years, consumer-brand relationships have gained importance; nevertheless, their foundation in the green consumerism concept has been under-developed [26]. Green consumerism has primarily been limited to developed countries. However, its trend is rising in developing countries as these countries generate waste products at a rate higher than the natural degradation process and use resources at speed surpassing their replacement rate [27]. Efforts have been made to study it in emerging economies such as India.

Being one of the world's largest emerging economies, India has a crucial role to play in the global sustainability landscape [28]). As the country is developing rapidly, urbanization and industrial expansion are contributing to the depletion of its natural resources [29]. Therefore, environmental sustainability has emerged as a vital issue of concern in India [30]. The IQ Air Report highlights that a majority of the most polluted cities are in India [31]. The Yale Columbia Environmental Performance Index (EPI) also reveals the low ranking of India and signals the need to improve sustainability efforts [32]. In view of the same, several initiatives, schemes and programs have been launched in the country by the government and other authorities to promote sustainability and the use of green products [33]. Therefore, eco-friendly and green products have gained significance in recent years [34]. Green consumption practices are important to ensure sustainable consumption [15]. It has been found that consumers are gradually changing their consumption behavior to align with the environmental expectations [35].

Moreover, studies have adopted green practices to promote sustainability, and consumers are far more conscious of eco-friendly products [36]. However, studies in this context remain missing in emerging economies. There is a broader scope to conduct detailed research on green marketing in emerging nations such as India [37].

In green brand AI anthropomorphism, it is pertinent to investigate product usage barriers as consumers prefer to connect with products without a usage barrier that arises from technological innovations [38]. In addition, psychological ownership is acknowledged as a valuable asset that has value-enhancing consequences for consumers by satisfying their key motives [39]. It implies possessive feelings toward material or immaterial objects that exemplify feelings of 'my', 'mine,' and 'our' [40]. The intersection of psychological ownership and AI anthropomorphism offers another crucial area of investigation to contemplate the effects on the consumer green brand relationships. This study applied the anthropomorphism and psychological ownership theory to investigate the influence of product usage barriers (PUB) and psychological ownership- (PO) on the interactions between green brand AI anthropomorphism (GBA) and consumer relationships (CR). The research questions formulated for the study are: (i) does green brand AI anthropomorphism impact consumer relationships?; (ii) how do the product usage barrier and psychological ownership influence the above relationship? The study examines the mediating role of product usage barrier and

psychological ownership using anthropomorphism and psychological ownership theory. This study extends the psychological ownership theory with consumer-brand relationships in retail.

We present a significant contribution to the existing research literature. First, the study investigates anthropomorphism and consumer relationships in the context of green brands. Second, the study examines the role of two crucial constructs, i.e., psychological ownership and product usage barrier, on the green brand anthropomorphism and consumer relationships. Third, through a sequential mediation, the study establishes that despite the product usage barrier, the psychological ownership in green brand AI anthropomorphism strengthens the consumer relationships. Therefore, while the extant literature majorly emphasizes the technicality of the AI tools [41], this study provides empirical evidence to establish the crucial role of psychological ownership in reinforcing the consumer relationship with green brand AI anthropomorphism. The subsequent research paper discusses the theoretical background, the hypotheses development, research methodology, results, discussion, theoretical and managerial implications, limitations and directions for future research.

2. Theoretical Framework

2.1. Theory of Anthropomorphism

The theory of anthropomorphism shows the consumer interactions with green brands through AI, which impacts their relationship with the brands [42]. The anthropomorphism theory argues that there are three key psychological triggers for anthropomorphic thinking that ascertain the prospect of perceiving human-like attributes in non-human objects. These are elicited agent knowledge, sociality and effectance [18]. The elicited agent knowledge is a cognitive factor of anthropomorphism [43]. It implies that individuals judge objects with some similarities with human beings; they activate the same mental processes when thinking about human beings and anthropomorphized objects and consequently attribute human-like qualities to such objects. Calling Amazon's virtual assistant, Alexa, as if it is a person is an example of such a cognitive attribution [44]. Effectance motivation draws from the innate need of the individuals to comprehend behavior in their environment and interact with their situations effectively. People gain control over anthropomorphized agents by attributing human traits to anthropomorphized objects. It improves their predictability and reduces uncertainty [45]. When the consumers lack certainty, for example, in the case of local green brands, they tend to apply anthropomorphism to reduce ambiguity. The anthropomorphism theory's social motivation factor stems from individuals' need for social interaction, contact, and attachment. To satisfy such a need, individuals tend to perceive non-human or anthropomorphized objects as their social counterpart [18]. Anthropomorphism enables individuals to achieve the desire to develop social relationships [46].

2.2. Psychological Ownership Theory

Psychological ownership refers to a "state in which individuals feel as though the target of ownership (or a piece of that target) is theirs (i.e., it is 'MINE')" [40]. The legislation and other individuals acknowledge that psychological ownership differs from legal ownership. On the other hand, psychological ownership is a perception derived and manifested by the individual [47]. Such ownership satisfies three key psychological motives, i.e., the need for efficacy and effectance, self-identity and belongingness [48]. Furthermore, the theory suggests three significant routes to ownership, i.e., how individuals come to feel ownership. These three routes are the ability to use and control the use (perceived control), comprehensive knowledge of the object (intimate knowing), devoting time, attention, energy and effort (self-investment) [48]. In the marketing landscape, it has been found that psychological ownership leads to customer engagement [49] and empowers customers [50]. The present study is well-grounded in the psychological ownership theory as the AI anthropomorphism possesses the necessary attributes to fulfil the three basic needs, i.e., provide a sense of control to the consumers in their service experience and ability to express

their self-identity. Customers can also engage with them, resulting in an intention to revisit the experience in the future or other post-adoption behaviors.

3. Hypothesis Formulation

The consumer relationship is multidimensional [51]. In the context of green brands, it has been established that a combination of functional and emotional benefits must be established [52]), and hence anthropomorphizing the brand can result in stronger consumer relationships by way of expressing feelings of love and cognitive closeness to the consumer [13]). Anthropomorphism comforts consumers by promoting companionship and enabling them to comprehend their environment. Therefore, brands viewed as humans with emotions, intentions and agency can lead to improved consumer relationships [53]. It is argued that an anthropomorphized brand is viewed as a social object with personality and humanity [54]. Hence, consumer relations follow anthropomorphism. Therefore, we hypothesize the following:

Hypothesis (H1): *Green brand AI anthropomorphism has a positive impact on consumer relationships.*

A product usage barrier implies resistance to using the product that stems from innovation that disrupts the original beliefs of consumers [38]. Such a functional barrier is a driver of consumer resistance to innovations. When the innovation is linked to technology, such usage barriers become more dominant as the new technology is perceived as complex and difficult to understand or use [55]. Due to the deployment of high-end technology and human resemblance, it has been found that consumers perceive that a higher level of effort is required to use green brand AI anthropomorphism [56]. When the consumers view anthropomorphism as intelligent human-like beings with their own social beliefs [57] they assume that they need to interact with an actual human and also learn a technological device, thereby increasing the amount of effort required. The need for an increased effort acts as a barrier, thus rendering the consumers unwilling to use AI anthropomorphism [56].

Furthermore, the green brand AI anthropomorphism also challenges consumers' perception of human distinctiveness, thereby acting as a barrier to its usage [58] Studies have well-acknowledged the mediating role of the product usage barrier in anthropomorphism [38,59]. Thus, we hypothesize:

Hypothesis (H2): *Green brand AI anthropomorphism negatively affects consumer relationship with green brand AI anthropomorphism through the mediating role of product usage barrier with AI anthropomorphism.*

Psychological ownership has gained recent attention in the marketing literature [60] as it is deemed to profoundly impact several aspects of consumer relationships, such as purchase intention [61] and willingness to pay more [62]. Various research studies have discussed the mediating role of psychological ownership [63,64]). It is argued that the psychological ownership of green products generates positive attitudes towards them [65]. Through the lens of the psychological ownership theory, the control in interactions with AI anthropomorphism, obtaining knowledge, and investing self into them results in the development of higher-level relationships and psychological bonds with them, thereby positively affecting consumer relationships behaviours [66]. Therefore, we formulate the below hypothesis:

Hypothesis (H3): *Green brand AI anthropomorphism positively impacts the consumer relationship with green brand AI anthropomorphism through the mediating role of psychological ownership with AI anthropomorphism.*

The extant literature has revealed that anthropomorphism increases product usage barriers as the “consumers will experience discomfort—specifically, feelings of eeriness and a threat to their human identity” [67], which in turn negatively influences consumer

relationships. However, the psychological ownership with the green brand AI anthropomorphism alters this relationship. It is argued that psychological ownership positively impacts usage intention [68]. Due to this psychological ownership, consumers perceive that green brand AI anthropomorphism is well under their control and can be amended in line with their preferences irrespective of any barrier [66]. These findings are in line with the prior work by Jörling et al. [69] that profoundly demonstrates that perceived control is a crucial element in adopting and using green brand AI anthropomorphism. Therefore, the negative impact of the product usage barrier is offset by the strong role of consumers' psychological ownership of the green brand AI anthropomorphism, thereby positively affecting consumer relationships. Hence, we hypothesize:

Hypothesis (H4): *Product usage barrier with AI anthropomorphism and psychological ownership with AI anthropomorphism serially mediate the relationship between green brand AI anthropomorphism and consumer relationship with green brand AI anthropomorphism.*

Figure 1 below shows the conceptual framework of research.

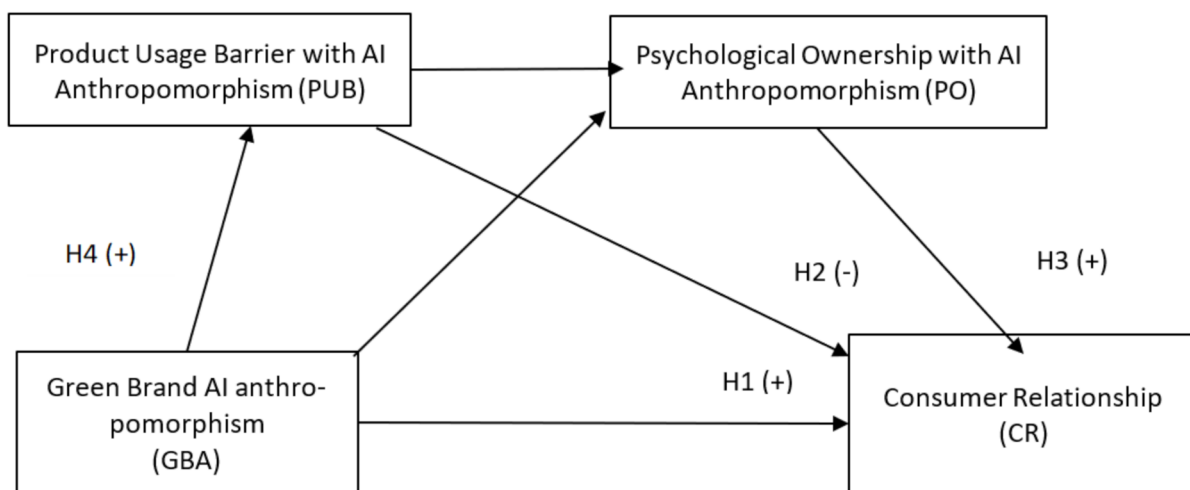


Figure 1. Conceptual framework.

4. Research Methodology

4.1. Research Context and Data Collection

A self-administered survey-based questionnaire technique was employed, and data were collected from Indian consumers from March 2022 to May 2022 (For data collection, the non-probability sampling technique was used [70]). The purpose was to understand the consumer relationship with green brand AI anthropomorphism. The study emphasized consumers' awareness of the "digital world" and those who have shopping experiences through digital platforms [71]. Thus, the study considered young consumers born after 1981 (i.e., millennials). Based on the aim of the study, participants needed to access AI anthropomorphism through both online and physical stores. Hence, we asked a qualifying question to check this aspect of the study. The survey procedure comprised the definition of AI anthropomorphism, a video (two minutes' duration), a questionnaire, and an instruction form. The survey was circulated through various digital platforms such as LinkedIn, Facebook, etc. In addition, participants were provided with an information sheet explaining the study's objective, the completion time, and the reward for participating in the survey. Consent to fill out the questionnaire was obtained from the prospective candidates. After that, we shared a web link with them. A pre-test with fifteen respondents was conducted to ensure that the wording of the questionnaire was appropriate. After that, we rectified the questionnaire and distributed it through the web link among the prospective participants. Follow-up emails were sent to prompt the respondents to complete the survey question-

naire. The reminders were sent every two days until the questionnaire was returned. The reward as an entry to a sweepstake contest was given to respondents for their participation in the survey.

Moreover, the participants were assured of their responses' privacy, anonymity, and confidentiality. A total of 334 responses were received, and we discarded 39 missing and incomplete responses. Hence, 295 duly filled questionnaires were used for the analysis. A response rate of 88.32% was achieved. Among 295 responses (Table 1), 55.93% were men, and 69.83% had a graduation degree. The monthly family income of the respondents (65.42%) was between \$2000–\$4000.

Table 1. Demographic profile of respondents.

Demographic Characteristics	Items	Sample Size (%)
Age	20–30 years	173 (58.64%)
	31–40 years	83 (28.14%)
	41 and above	39 (13.22%)
Marital status	Married	201 (68.14%)
	Unmarried	94 (31.86%)
Gender	Male	165 (55.93%)
	Female	130 (44.07%)
Educational Qualification	Below graduation	19 (6.44%)
	Graduation	206 (69.83%)
	Post-graduation and higher	70 (23.73%)
Monthly income	US\$1000 and below	16 (5.42%)
	US\$1000–US\$2000	67 (22.71%)
	US\$2000–US\$4000	193 (65.42%)
	More than US\$4000	19 (6.45%)

4.2. Measurement

Past literature was referred to for selecting the scale items for measurement. The study used four items of product usage barrier of AI anthropomorphism from Cox et al. [72]. Six items were selected from [73] to measure interactions with green brand AI anthropomorphism. The study used psychological ownership with AI anthropomorphism from [74], comprising five items. Items for consumer relationship with green brand AI anthropomorphism with second-order measurement items were adapted from [51]. There were eight dimensions of sixteen scale items: passion, self-connection, intimacy, love, nostalgia, personal commitment, partner quality, and trust. All measurement items were measured using a strongly disagree (1) to strongly agree (7) seven-point Likert scale.

4.3. Common Method Bias

Common method bias (CMB) may arise as data is collected simultaneously for all the constructs [75]. We evaluated the full collinearity approach to test CMB and found that all values were within the upper limit of 3.3 [76], suggesting that CMB was not present in this study. Moreover, Harman's single-factor test was examined; the results had a total variance of 33.21% in the sample. This further demonstrates that CMB was not a problem in this study [77].

5. Results

5.1. Assessment of Measurement Model

Amos version 24 was used to assess this study's convergent and discriminant validity. We used composite reliability (CR), Cronbach's alpha (α), factor loadings, and average variance extracted (AVE) to examine convergent validity. Table 1 shows all scale items with factor loadings having threshold values above 0.7 [78]. All constructs have AVE values above the 0.50 threshold value (Table 2), and CR values were more than 0. Thus,

convergent validity is established in the study. To establish discriminant validity, we established that the square root of AVE should be above 0. In contrast, AVE's square root for each latent construct should be greater than its correlation with any other construct [79]. Specifically, we observed values close to the acceptable range; therefore, the Heterotrait-Monotrait Ratio of Correlations (HTMT) was examined through Amos (Table 2). The values received were less than the threshold value of 0.85, establishing discriminant validity for this study. The fit indices were calculated through Amos version 24 were Normed $\chi^2 = 2.278$; CFI = 0.918, IFI = 0.923, TLI = 0.927 and RMSEA = 0. Thus, this study satisfies convergent and discriminant validity.

Table 2. Description of Constructs & items of the study and measurement assessment.

Construct & Items	Estimate	CR	Cronbach's Alpha (α)
Consumer relationship with green brand AI Anthropomorphism (CRGB)		0.901	0.906
Passion:			
CRGB 1: It is a feeling of loss when I have not used AI Anthropomorphism for a while.	0.724		
CRGB 2: Something would definitely be missing in my life should AI Anthropomorphism not exist.	0.712		
Intimacy:			
CRGB 3: I have the feeling that I really understand AI Anthropomorphism.	0.751		
CRGB 4: It feels like I have known AI Anthropomorphism for a long time.	0.716		
Self-Connection:			
CRGB 5: AI Anthropomorphism and I have lots in common.	0.701		
CRGB 6: AI Anthropomorphism remind me of whom I am.	0.705		
Nostalgic connection:			
CRGB 7: AI Anthropomorphism reminds me of things that I have done or places I have been.	0.766		
CRGB 8: AI Anthropomorphism will always remind me of a certain period in my life.	0.765		
Love:			
CRGB 9: I have feelings for AI Anthropomorphism that I do not have for a lot of other brands.	0.729		
CRGB 10: If it is about retail, AI Anthropomorphism is my favorite brand.	0.738		
Partner Quality:			
CRGB 11: AI Anthropomorphism have always been good to me.	0.721		
CRGB 12: AI Anthropomorphism treat me as an important and valuable customer.	0.750		
Personal Commitment:			
CRGB 13: AI Anthropomorphism can always count on me.	0.705		
CRGB 14: I will continue using AI Anthropomorphism in the near future.	0.703		
Trust:			
CRGB 15: I trust AI Anthropomorphism.	0.708		
CRGB 16: AI Anthropomorphism is an honest brand.	0.701		
Psychological ownership (PO) with AI anthropomorphism		0.902	0.911

Table 2. Cont.

Construct & Items	Estimate	CR	Cronbach's Alpha (α)
PO1: Although I do not legally own AI Anthropomorphism, I feel like this is "my" anthropomorphism.	0.738		
PO 2: I feel a very high degree of personal ownership of AI anthropomorphism.	0.719		
PO 3: I feel like this AI anthropomorphism belongs to me.	0.728		
PO 4: I feel a strong sense of closeness with AI anthropomorphism.	0.712		
PO 5: AI anthropomorphism incorporates a part of myself.	0.738		
Green brand AI anthropomorphism (GBA)		0.932	0.923
GBA 1: The green AI Anthropomorphism have humanlike features.	0.976		
GBA 2: The green AI Anthropomorphism has a personality.	0.892		
GBA 3: The green AI Anthropomorphism gradually get to know me.	0.835		
GBA 4: The green AI Anthropomorphism is able to behave like a human.	0.870		
GBA 5: The green AI Anthropomorphism respond in ways that are personalized.	0.813		
GBA 6: The green AI Anthropomorphism is able to communicate like a human.	0.742		
Product usage barrier (PUB) with AI anthropomorphism		0.838	0.901
PUB1: To what degree do you think that there are reasons to prevent you from using AI Anthropomorphism green products?	0.842		
PUB2: Using this AI Anthropomorphism would be inconvenient	0.830		
PUB3: Using this AI Anthropomorphism would be embarrassing	0.844		
PUB4: Using this AI Anthropomorphism would take too much effort.	0.756		

5.2. Hypothesis Testing

To test the hypothesis for the study, we used the SPSS PROCESS macro [80]. We used mediation and sequential mediation techniques to assess the conceptual model. The study used a non-parametric bootstrapping regression technique using 5000 sub-samples and specified multiple iterations. In addition, we applied PROCESS macro models 4, 6, and 14 with an independent variable (GBA), two mediators (PUB and PO), and a dependent variable (CR). The mediation effect explains the strength of the conceptual model's direct and indirect effect [81] (MacKinnon et al., 2007).

5.3. Assessment of Mediation Effect

Table 3 illustrates the mediation results (PROCESS model 4) of product usage barrier and psychological ownership and sequential mediation analysis (PROCESS Model 6). The direct relationship between green brand AI anthropomorphism and consumer relationship with green brand AI anthropomorphism is significant and positively correlated (effect = 0.626; $t = 9.833$; $p < 0.01$); thus, hypothesis H1 is supported. Further, direct relationship between GBA \rightarrow CR (without PUB mediator) is positive and significant (effect = 0.315; $t = 4.449$; $p < 0.01$) and indirect effect of GBA \rightarrow PUB \rightarrow CR is negative and insignificant (effect = -0.321 ; 95% CI [$-0.227, 0.475$]). The direct relationship is positive and significant and the indirect relationship is negative and insignificant. Therefore, PUB does not mediate the relationship between GBA and CR. Thus, hypothesis H2 is not supported. Similarly, the direct relationship between GBA \rightarrow CR (without PO mediator) is significant and positive (effect = 0.269; $t = 4.339$; $p < 0.01$) and indirect effect of GBA \rightarrow PO \rightarrow CR is also significant (effect = 0.377; 95% CI [$0.264, 0.504$]). Both direct and indirect effect is positive and statisti-

cally significant. Thus, PO partially mediates the relationship between GBA and CR; this finding supports hypothesis H3.

Table 3. Descriptive statistics and discriminant validity.

	Mean (SD)	AVE	CRGB	GBA	PUB	PO
Consumer relationship with green brand AI anthropomorphism (CRGB)	5.234 (1.071)	0.761	<u>0.872</u>	0.177 *	0.675 *	0.163 *
Green brand AI anthropomorphism (GBA)	5.352 (0.857)	0.511	0.122	<u>0.714</u>	0.708 *	0.606 *
Product usage barrier (PUB) with AI anthropomorphism	5.561 (0.922)	0.629	0.135	0.666	<u>0.793</u>	0.803 *
Psychological Ownership (PO) with AI anthropomorphism	5.541 (0.873)	0.625	−0.051	0.601	0.773	<u>0.790</u>

Note: Values in diagonal and underline represent the square root of AVE (Fornell-Larcker criterion). * Values in italics represent Heterotrait—Monotrait Ratio (HTMT, Henseler et al. criterion).

5.4. Sequential Mediation

We used PROCESS macro model 6 to assess the sequential mediation of PUB and PO between GBA and CR. To examine this, both the direct and indirect effects were calculated (Table 4). The mediation analysis results provided two significant indirect effects and one insignificant indirect effect. The first (GBA → PUB → CR) was 0.178, which is insignificant, the second (GBA → PO → CR) was 0.150, and the third (GBA → PUB → PS → CR) was 0. Adding these two significant indirect effects accounted for the total indirect effect of 0.344; 95% CI [0.336, 0.616]. On the other hand, the direct effect of GBA → CR (without PUB and PO as sequential mediators) was positive and significant (effect = 0.267; $t = 4.395$; $p < 0.01$). Notably, as both indirect and direct effects were significant, it does establish partial mediation of sequential mediators PUB and PO between GBA and CR. Thus, hypothesis H4 regarding sequential mediation of PUB and PO is also supported.

Table 4. Direct and mediation path analysis.

Hypothesized Path	Direct Effect	<i>t</i> Value	Indirect Effect	BootSE	95% Percentile CI	Decision
H1: GBA → CRGB	0.626	9.833			[0.509, 0.723]	supported
H2: GBA → PUB → CRGB	0.315	4.449	−0.321	−0.055	[−0.227, 0.475]	Not supported
H3: GBA → PO → CRGB	0.269	4.339	0.377	0.053	[0.264, 0.504]	supported
H4: GBA → PUB → PO → CRGB	0.277	4.285	0.066	0.023	[0.028, 0.121]	supported

(Note: CRGB—Consumer relationship with green brand AI anthropomorphism; GBA—Green brand AI anthropomorphism; PUB—Product usage barrier with AI anthropomorphism; PO—Psychological Ownership with AI anthropomorphism).

6. Discussion

Previous research asserts that retailing is experiencing change in technology with technology, yet, the literature has limited information on the impact of this change [59]. In order to stay competitive, many retailers have started embracing various digital technologies to engage with their customers [82]. They use AI applications to establish this connection [83]. The study aims to understand the role of green brand AI anthropomorphism in consumer relationships and strongly supports green AI brand anthropomorphism [84].

The application of AI anthropomorphism in green retail was reviewed to bridge this gap. It was conceptualized that AI can best be employed in retail by enhancing customer engagement. Green retailers are using AI anthropomorphism to provide a positive in-store shopping environment despite barriers to using technology faced by consumers. By leveraging psychological ownership mechanisms and encouraging consumers to engage with robots actively. We propose the path of psychological ownership in technology for building consumer relationships by explaining the desirable behavior [24].

India was chosen for this study as green practices have witnessed exponential growth. Study outcomes reinforce the role of psychological ownership in building consumer relationships [66] despite product usage barriers [56] using green brand AI anthropomorphism [17]. The study further demonstrates the psychological ownership theory (Pierce et al., 2001), which supports the building of consumer relationships with green brand AI anthropomorphism. The study's findings are consistent with the existing literature on building consumer relationships with green brand AI anthropomorphism unaffected by any physical or functional barrier [38,66,69]; Psychological ownership is a statistically significant predictor of consumer relationships while interacting with green brand AI anthropomorphism. Our study concludes with a novel finding suggesting how consumers use and embrace this new technology and reinforce that psychological ownership of AI anthropomorphism strengthens consumer relationships despite product usage barriers. In the current study, the product usage barrier is insignificant, and psychological ownership is a statistically significant mediator of the green brand AI anthropomorphism and consumer relationship.

6.1. Theoretical Implications

The findings of the study contribute to the literature on psychological ownership of green brand AI anthropomorphism [17] which is based on the theory of brand anthropomorphism [85]. This psychological ownership helps build consumer relationships. [86–88]; which support the application of anthropomorphic effects.

We offer empirical evidence on psychological ownership with green brand AI anthropomorphism [89] building consumer relationships [90], thus fulfilling a gap in the literature. The study also corroborates that despite the product usage barrier [38], the psychological ownership in green brand AI anthropomorphism strengthens the consumer relationship. Most of the previous research studies have focused on the technicality of AI tools [41] However, through this study, we have enhanced existing understanding by offering empirical support that consumer relationships get stronger with green brand AI anthropomorphism with psychological ownership despite product usage barriers [91]. According to the authors' best knowledge, these findings have been claimed in the previous literature but have not been empirically validated. This study, applying psychological ownership theory to green brand AI anthropomorphism, justifies the role of ownership in technology for building consumer relationships.

The findings suggest that psychological ownership develops with green AI anthropomorphism despite the product usage barrier [59]. While the green brand literature has documented favorable consumer intentions to buy products [92], there has been no active investigation on how consumers having product usage barriers with green brand AI anthropomorphism affects consumer relationships [20]. This study suggests that consumers build relationships based on green AI anthropomorphic effects due to psychological ownership despite usage barriers. Furthermore, consumers favorably evaluate green brand AI anthropomorphism with psychological ownership of AI anthropomorphism. These findings provide empirical evidence of green brand AI anthropomorphism in enhancing the anthropomorphic effects of green brands.

The research also contributes to the literature on how anthropomorphism affects socially responsible behaviors resulting in building relationship with the brand. We complement the existing studies by showing green brand anthropomorphism resulting in sustainable behaviors. The results show an overall positive relationship and influence among green brand anthropomorphism and consumer relationship. Organizations should adopt green brand strategies to make the consumer aware of benefits of green brand to environment and society. This will result in prompting green buying behavior and green satisfaction along with ownership. Green brand anthropomorphism will encourage a sense of compassion, kindness and nurturing resulting in psychological ownership of these brands.

6.2. Managerial Implications

Our research findings have implications for brand managers as this research suggests the importance of AI anthropomorphism for green brands to build consumer relationships. As prior research noted, the main reason anthropomorphism is used is to build relationships [93], and the findings of this research may be explained in this context. Additionally, this research suggests anthropomorphized brand strategies for promotion marketers who should develop communication and social skills of green AI anthropomorphized brands. Furthermore, practitioners should develop policies, procedures, and systems to enhance psychological ownership in the green brand AI anthropomorphism. Marketers should promote the merits of AI anthropomorphism such as reliability and dependability in offline and online marketing channels. These findings will reinforce consumers' beliefs in green brand AI anthropomorphism and strengthen consumer relationships.

This study suggests that interactions with green brand AI anthropomorphism develop the consumers' psychological ownership. This psychological ownership is possible when AI anthropomorphism is trained in quality communications. Communicating the benefits of a green brand will facilitate the development of psychological ownership with green brand AI anthropomorphism [40]. When consumers exercise control over an object after investing in knowing the object and finally knowing, it facilitates the development of psychological ownership. Thus, we confirm with empirical evidence for the work done by [94] on technology-related psychological ownership. Furthermore, green brand AI anthropomorphism should also be able to interact, convey the benefits of using green brands and resolve problems to instill ownership of the consumer with AI anthropomorphism.

Marketers should develop guidelines about interactions with green brand AI anthropomorphism. And offer accessible guidance on using new technology is key to improving consumer relationships. Consumers should be trained on correct operating procedures, such as where to stand and talk, the clarity of communication required, the type of questions to be asked, to obtain a response for a question the possibility of initiating a conversation with a stranger. At a deeper level, consumers need to know more about the unfamiliar technology when it is in its infancy. This finding will foster consumer learning and reduce product usage barriers with AI anthropomorphism. Promoting electronic word of mouth and sharing the experience of users who have interacted with AI anthropomorphism will help advertise the ability of technology to match unique consumer needs. The study adds to the research findings about the mediating role of the usage barrier [59] for AI anthropomorphism and how it may negatively affect consumer relationships.

In this research, consumers who develop psychological ownership with AI anthropomorphism are strongly connected to the brand and less likely to react to product usage negatively. Such responses of consumers with a strong consumer relationship can be a valuable resource in promoting green brand AI anthropomorphism [17].

6.3. Limitations and Future Research

The study has few limitations that future researchers can address. The study is built on the contention that consumers perceive green brand AI anthropomorphism as humanized, thus developing a relationship with the green brand. However, this study does not consider the emotional attachments with brand AI anthropomorphism. Future researchers can thus examine whether the proposed conceptual model relationship exists with consumers who do not perceive green brand AI anthropomorphism as human-like. The study did not consider the impact of features such as the effect of voice, response time, and type of interactions on consumer relationship with green brand AI anthropomorphism. Future researchers may examine the impact of these attributes on green brand AI anthropomorphism by using a longitudinal methodology to examine the changes in this relationship over time. Future researchers could examine if the consumer's ethical approach has a confounding effect on this relationship, which the present study did not examine. The study presents product usage barriers and psychological ownership's impact on consumer relationship with green brand AI anthropomorphism. Future researchers can expand the findings in

different contexts, such as organic foods, etc. and examine if the type of shopping affects the green brand AI anthropomorphism. We collected data from Indian consumers using non-probability sampling techniques. Future researchers may consider using cross-sectional or longitudinal sampling for data collection to verify the results. We did not examine the effect of educational background, gender, race, ethnicity, or language spoken at home. Future researchers may consider these factors to test the proposed relationship with green brand AI anthropomorphism. In addition to these limitations, future researchers could examine if consumer culture or countries have any confounding effect on their relations with green brand AI anthropomorphism. AI has gained substantial importance, and the samples are collected from India with varied consumer languages or cultures that may have a role to play in this relationship.

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